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POINTS AND ENCOURAGEMENTS

FOR

C. J. Wickson

Profitable Fruit Growing

By W. S. MANNING.

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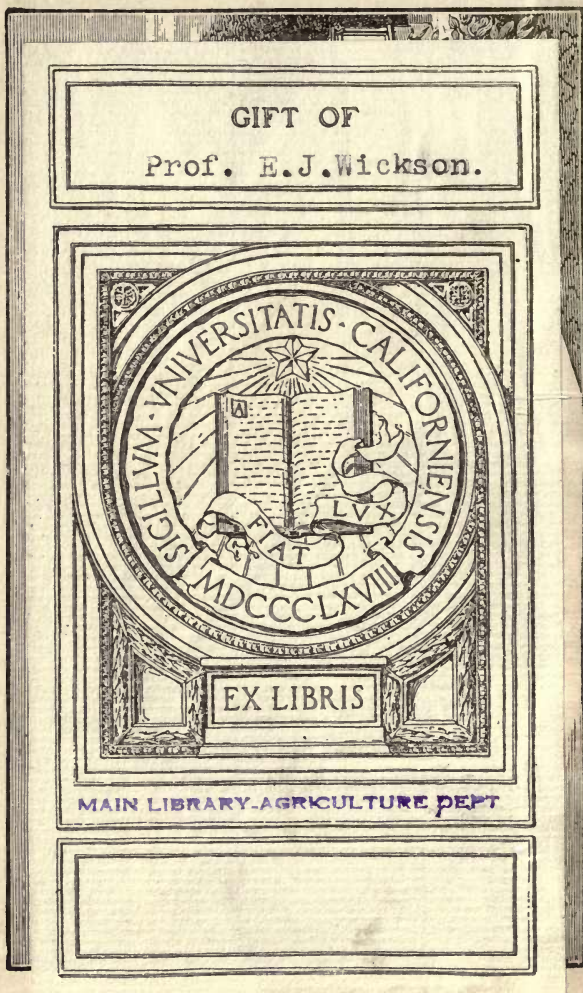
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Hints and Encouragements
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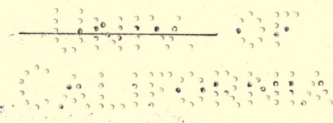
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Hints and Encouragements

FOR

PROFITABLE FRUIT GROWING.



BY

W. S. MANNING.

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UNIVERSITY OF MICHIGAN

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PROCEEDINGS OF THE

ANNUAL MEETING OF THE
AMERICAN SOCIETY OF
PLANT PHYSIOLOGISTS

W. S. MANNING.

PLANT PHYSIOLOGY
AND THE HISTORY OF THE
SCIENCE OF PLANT PHYSIOLOGY
IN THE UNITED STATES

M. N. 170

PREFACE.

THE following treatise was mostly written as a Prize Essay, in competition with about sixteen others, for the Gold Medal of the Fruiterers' Company, last year. It was sent to the Judges under the motto of "Hope On," and they reported that it was one of those deserving to be considered and described as "particularly meritorious."

The "terms and conditions" of that competition stated that "the object is to encourage Fruit Culture by Cottagers, and others with small holdings, as a substitute for, or adjunct to, the ordinary methods of cropping their gardens and allotments with roots or other vegetables."

This Essay differs from that to which the prize was awarded in one important aspect, namely, that it deals with every variety of fruit usually grown in England, whilst only the ordinary orchard fruits and the hardy bush fruits are treated of in the Prize Essay.

Whilst it is in every way most desirable that cottagers should cultivate fruit for their home consumption as food by their own families, there is very little doubt that those undertaking its culture on small holdings, will mostly do so with the view to realize their produce, more or less as a source of profit. As a profitable occupation it will, however, be found that on a limited area, or where land is very dear, or where a regular avocation is sought for the year round, those fruits will be cultivated, mainly around large towns, that are grown under glass, in preference to orchard trees or other hardy sorts.

The phrase, "Profitable Fruit Growing," is understood to mean (I suppose) a mode of cultivating fruit that will be likely to pay for the capital and labour expended, when the produce is fairly well realized at market rates.

Guided by such a definition, one would naturally assume that the fruits that might be best raised to-day for profit on small holdings were those that are described as hardy orchard and bush fruits, judging from the varieties of which the cultivation is excellently described in the Fruiterers' Company's Prize Essay. As a matter of fact, however, there can be no doubt in the minds of those conversant with the fruit supply at our leading markets, that there are scarcely any cottagers who are able to supply such hardy fruits, partly because they cannot command a sufficient acreage of land, or because they are unable to secure safe terms of holding. On the other hand there is every year a large increase in the supply of grapes, melons, wall fruit, and figs, which are all grown *under glass*, and of which a good proportion is actually produced by small growers, who have worked themselves up from a very humble beginning, raising first probably a few bedding plants, ferns, cucumbers, or tomatoes for sale, and investing the proceeds on more materials for extending their greenhouses, but many of them commencing merely as cottagers.

Looking at the question of fruit culture then, broadly, as an important personal and national concern, it must be seen that the selection of the kind of fruit to grow, will depend entirely upon circumstances. There are certain counties, for instance, like Cambridgeshire, Oxfordshire (parts of), Worcestershire, and parts of Cheshire, where plums and gages are found to be especially prolific and safe crops, and certain parts of Notts. are equally favourably situated for apples. In such exceptional cases the small cultivator would do well to take advantage of "his environments." He will shrewdly follow the guidance of any such local indications, as well as in the selection of special varieties. The case of the "Bramley's Seedling" apple, which appears to be giving splendid returns in Notts. and other Midland counties, just as the "Forge" apple is taking a lead, as a most successful local sort in some districts of Sussex, may be mentioned as examples.

Where suitable land can be got, not too dear, strawberries, raspberries, and the other soft or "bush fruits," currants, and gooseberries can be safely relied upon; but in the great majority of cases, for some years to come, the small cultivator who wants to get a living by fruit, must have recourse to culture under *glass*. To that extent, therefore, it will be found probably, that the Fruiterers' Company have been somewhat doubtfully advised, in having issued a manual that ignores altogether glass cultivation.

Probably no reasonable man expects to learn any trade from reading alone. The cultivation of garden fruits so much depends upon locality, observation, and personal experience and skill, that none should look for more than a few preliminary hints in a work of this size, as to what may be reasonably attempted with a fair prospect of success.

The writer has carefully endeavoured merely to "focus" the comparative merits of the many kinds of fruit that can be successfully grown in different parts of these islands. It only remains to add that, as a rule, the "expert" who excels in one fruit, and cultivates that almost solely, is probably likely to do far the best at first, at any rate to secure a good *name*, whilst the too ambitious "Jack of all trades," if he is growing for market chiefly, will find that he is almost certain to come to grief, if he has "too many irons in the fire," or attempts to meddle with several sorts of fruit at once. Where capital is invested, a certain proportion of it will always be judiciously spent in obtaining the co-operation of skilled and technical experience. The advice of any local head gardener in the district, or respectable nurseryman may be sought with advantage in the selection of such a well-trained foreman. Wherever "houses" are erected largely, such skilled experience is almost indispensable at the start.

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HINTS AND ENCOURAGEMENTS
FOR
PROFITABLE FRUIT GROWING.

CHAPTER I.

CAN ENGLAND GROW ITS OWN FRUIT?

How is this most vital question to be solved?—a question that must be solved before agricultural distress can be permanently remedied, and one that gradually must be solved before our great labour difficulties can be effectually grappled with. How can small holdings be made permanently to pay for cultivation as fruit plantations, so that the rural labourer can get a prospect of a future of independence by exercising thrift, skill, and enterprise? Then a few really energetic and earnest men in each county might gradually revolutionize the agricultural “corn and stock” system now in vogue, throughout the entire country, if successful at scientific fruit farming, as their example would soon induce others to follow on.

In the following series of articles, every kind of fruit grown in England will be mentioned, and their culture described briefly, because all, in time, will be within the reach of the cottager who is willing to do his best at their cultivation.

The selection of the species to grow must be left to each cultivator, according to the character of the soil and the requirements of the grower's trade. If wishing to make the most from a limited area of dear land, with plenty of time at disposal, he will try *glass cultivation*, especially if able to handle carpenters' tools fairly well, and to erect the "houses" mainly himself. What Mr. Boddy has done at Penzance, or Mr. Ladds or Messrs. Burton at Bexley, in the highest class of fruit, may be done by thousands more throughout the country.

To acquire the right habits and the requisite skill is a matter of self-reliant resolution, mainly. There will be, perhaps, many difficulties to encounter, but as it is certain that fruit-growing must pay if undertaken with judgment and cautious enterprise, all efforts to attain success will be ultimately certain of due reward; it may be that a second generation only will reap fully, in some cases, what the present may sow. Let the growing lads, therefore, have the full benefit of the following hints; let them study the gardening literature; and let them, in their earliest years, be put into such a position that they may acquire a perfect knowledge of some branches of this natural and most attractive of all human pursuits.

CHAPTER II.

AN EXAMPLE OF SUCCESS OUT-DOORS.

ONE of the most successful of Kentish fruit growers of this century was an uneducated labouring man, who went to the owner of some uncultivated furze land, and asked at what rate he could hire an acre or two "of them fuzzes." Having secured the poor stony soil, he thoroughly worked it, planted it with raspberries, and with his wife's hoarded stocking store of small savings he well manured it with London dung in early spring, and thus secured a very profitable crop. He then, for many years, went on increasing his holdings, till at his death, he had become one of the largest growers of fruit for the London jam makers, and each of his sons was established on a good-sized farm at the same profitable occupation.

There are scores of men in the same district around Bexley, who have in a similar way acquired positions of independence by thus cultivating fruit or flowers for the needs of London, who started without any capital.

As men set to work in earnest, and have confidence in themselves, they will find that others will have confidence in them also, and often give them a helping hand, as they may require it, to tide over their first difficulties.

CHAPTER III.

A LUCRATIVE TRADE, OFTEN WITH LITTLE COMPETITION

FOR the encouragement of fruit culture, it will be well to bear in mind, that it is for many districts an almost new, or newly-revived trade in this country; that in cities and seaport towns there is often ten times more fruit sold per head than in other inland towns, *owing to the want of supply* the greater part of the year, so that there is room for a very large increase in the supplies in nearly every part of the country.

For those of plodding habits, resolved to get on by patient industry, it will be seen there is not the smallest need to emigrate to make an independent position.

If health is a main object, the out-door fruits will be chiefly grown, although the returns for these are so much more dependent upon seasons, and situation, and soil; where good land is cheap, as in many parts of Essex, there never was a better chance than the present to succeed, and with less risk of failure, where a well drained and well situated holding can be secured.

There are many such spots within thirty miles of London, where the sloe, and even the bullace is indigenous in the hedgerows, showing that stone fruit would

prosper well. In the cottage gardens around also, currant trees prosper equally, whilst nearly all hedgerow banks abound with blackberries. Here, then, fruit would surely grow very profitably under cultivation. Plums and damsons would thrive to perfection where the sloe abounds, and in fact, all sorts of stone fruit generally grow well in the gardens around.

Such safe fruits as damsons and other prolific and hardy trees of the plum tribe should be planted largely in those districts. In other parts of Essex, on poor soil that has never been worth over 10s. per acre for wheat, such favourite dessert apples as the "Yellow Ingestrie" and "King of the Pippins" thrive well, and supply the best quality. If the small holdings can be secured on long leases there is, therefore, abundant reason to plant hardy fruit trees (after the soil has been well prepared for receiving them), in all such districts as these within thirty miles of London, or other large cities.

CHAPTER IV.

WHO CAN GROW FRUIT PROFITABLY?

FRUIT growing is especially suitable for "small holdings" and large gardens. The big farmer considers it, as a rule, to be merely "a little man's job," and in many cases the orchard is looked upon as "a nuisance," often because the fences even are not kept up, and no attempt is made at careful cultivation by the ordinary farmer. But as the usual system of cultivation of corn crops and roots for stock is nearly every year bringing worse and worse results, all who are cultivating the soil, whether on a large or small scale, must look around for the most profitable fresh crops they can raise.

If fruit growing is undertaken generally, is it likely to be overdone?

To that question the general reply of the experts is "certainly not," if care is taken to select the right sorts to grow, *and to produce them of the best possible quality.* Indifferent quality, carelessly marketed, is almost certain to result in heavy loss. On the other hand, judging by the past ten or twenty years' trade, the markets will open out to receive any quantity of really good fruit that can be produced of every choice variety in its season.

The wonderfully rapid developments of the American apple trade, and of the Spanish melon and tomato trades during the past ten years, seem to justify one in stretching his imagination to its fullest extent, in attempting to forecast the possibilities of the expansion in the demand for our home-grown fruits during the next twenty years.

Hitherto it has been the tempting supplies that have *created* the increased demand in London and other large cities, etc. And there are hundreds of towns where the regular supply of fruit is meagre, and miserably small and poor; and where, if the supply for the next ten years were to be doubled every two or three years, there would be ready buyers for all that was offered of tempting quality, and in due rotation, so as to keep up a regular supply of all the best sorts in their season, all the year round. Intermittent supplies are less remunerative than when they are regular and dependable, as there is not encouragement enough for competition, and for the establishment of retail shops, as there is in large cities, with good wholesale markets near at hand.

CHAPTER V.

WHAT TO GROW.

FOR those who have the command of capital, and who want to invest it to the best advantage, and to know how best to employ, say, £150 to £250, there should probably be at least three-fourths reserved for the erection and heating of greenhouses. The heating apparatus, with boilers complete, would cost, on the average, nearly as much as the structure itself—say £1 per foot—and probably more to those who do most of the building work themselves. But this depends upon the size of structure, local circumstances, and what sells best, as well as to the amount of heat required. Tomatoes, wall-fruit, and occasionally grapes, are raised fairly successfully with very little or no artificial heating, but in that case we are too much at the mercy of the seasons to be safe.

This same uncertainty will prevent the cautious cultivator from depending to any large extent upon standard or “top fruit” for out-door culture. Apples, pears, and cherries, as a general rule, are not very dependable crops, unless in very favourable localities, and until the trees have been planted (if standards) from fifteen to twenty years.

Where the district is favourable, one can scarcely go wrong, however, with well-selected plum trees. Such prolific sorts as the "Victoria" will often bear well, even the second and third year after "grafting." But one must be prepared to have an occasional bad season, even with a good many of the best and most prolific sorts.

In really good situations there are few fruits that are so remunerative as well-selected gooseberries and currants. There are such really good prolific sorts in cultivation, that on well-cultivated ground the returns from these fruits are of the most encouraging and lucrative character. They are certain to find ready buyers if a little enquiry is made of the local retailers in advance, or at the nearest jam factory.

CHAPTER VI.

WHERE CAN IT BE GROWN PROFITABLY?

BEFORE starting, then, upon fruit growing, it is needful to get a few clear and definite ideas as to what to aim at. It is often quite forgotten that the production of every species of fruit should be almost a separate trade for those who wish to succeed in producing fine quality for market. This especially applies to the man of limited means and small experience. Those who want to excel and make a living upon the smallest outlay of capital, as hinted already, will probably turn to glass cultivation, for the following reasons:—

1. The risks are reduced to a minimum, by skill and watchfulness.

2. With such forced produce the returns are thus greater and more in proportion to the industry and energy of the cultivator.

3. The quality can be ensured of any standard required.

4. The season of supply can, to a certain extent, be controlled to suit local wants.

There are numerous seaside towns, for example, where, in their respective "season," the demand is for high-class fruit, and during the rest of the year

altogether another style of produce may find a steady remunerative outlet.

Growers in the North, again, make large profits by supplying our Southern seaside towns with strawberries, at, say 1s. to 1s. 6d. per lb., after our local crop is altogether over.

But it will probably be far better for those who have no special attachments to find out a district to start in, where a good home demand exists, than to depend on "the chances of the market," through the agency of salesmen in Covent Garden, if they intend to make a business of fruit growing under glass.

The best sites in the kingdom for apples and pears are to be found along the South coast, five to twenty miles inland, and especially in well-sheltered nooks of the South Downs.

At present, probably half the fruit that goes to the London markets has to bear two heavy railway rates, or the cost of carriage *from* the growers and then to the retailers (it may be fifty or a hundred miles away). The great bulk of the best fruit supplied at the seaside towns, as well as at the fruiterers in the North of England towns, comes from London, and these heavy double-transit outlays might be mostly saved by the local grower, as he could supply his produce (other things being equal, of course) in very much fresher and better condition, than after it has passed through Covent Garden, and at a much lower rate. This is a matter of the first importance with the soft fruits, like strawberries, raspberries, and ripe gooseberries, where the retailer can scarcely risk them unless quite fresh.

CHAPTER VII.

WHY THE SMALL MAN MUST TAKE THE LEAD.

FRUIT growing upon one acre of ground, *well prepared*, would probably bring about a better average return, after two or three years' experience, than even three acres by the old system of culture with roots, etc., with the proverbial cow added on. Every small cultivator will soon discover that to produce fruit *that pays* best, he must have his land partly covered with greenhouses.

For small holdings, grapes and wall-fruit, or melons and tomatoes are especially adapted, where the small grower is anxious to devote all his time to the business. The "corn and stock" farmer of 200 and 300 acres is doubtless correct in considering forced fruit growing, at the outset, as "a little man's job," as those who succeed best are the journeymen tradesmen or mechanics, who can put up a small greenhouse at the smallest outlay, and work out personally every detail.

Mr. Boddy, of Penzance, has written a little sixpenny pamphlet, giving his "Story of an Acre and a Half," in which he describes his success in producing grapes, cucumbers, etc., in greenhouses of his own construction (samples of his grapes being presented to the Queen as a Jubilee gift). It was not till Mr. Boddy was a

married man with a family that he commenced his career as a fruit grower.

There are at least two or three dozen thriving florists and fruit growers around Bexley Heath, in Kent, some who have been for many years equally successful at their work. What they and many others around London have been able to do, can be done around nearly all our larger towns, or wherever there is a railway station handy, and where land suitable for fruit culture is available within an hour's journey of a good market.

The marvellous growth of the foreign fruit trade the past ten years, also shows that practically there is no limit to the possible demand for good and tempting quality of home-grown fruit, although nearly all the expansion of our British consumption hitherto has been for the benefit of the foreign producer. It must surely be a convincing proof that such crops are extremely profitable, when we find that small holdings around Paris for fruit and choice vegetables, with a good supply of water, glass, and walls, will realize a rental at the rate of from £50 to £60, and upwards, per annum per acre, in a very similar climate to ours, as described in the extract appended to these articles.

CHAPTER VIII.

WILL IT ALL FIND A MARKET?

By liberal cultivation and enterprise all may hope to excel in raising fruit and the choicer vegetable products for London and our large towns. The main conditions of success seems to be:—

1. To grow the best quality possible, and the grower will thus work up a name and a high character for the leading produce raised for market.

2. To raise only such fruit as there is a pretty certain outlet for, until the produce grown is well known, and then gradually extend to make a market for other crops by cautious experiment.

3. To gain experience from examining the results with other growers, and carefully to watch the markets as to the best varieties.

4. To attempt nothing beyond what can be well done.

5. To be very careful to get the right soil and aspect, especially for orchard fruit.

Fruit growing for human food must be considered still quite in its infancy; and if continuous supplies are kept up, they will create a demand equal to any possible increase in the supply. Fruit affords the most enjoyable

relish for every meal, and might gradually supplant all the shrimps, winkles, and other manifold cheap and doubtful luxuries of the million.

Fruit being at least four-fifths water, would be found in time to afford complete substitutes for nearly every form of drinkables, whether hot or cold, whether pure water or "strong drink." If the demand for fruit continues to increase, therefore, at the same rate during the next twenty years as during the last, there will be outlets for all the British fruit that can be possibly raised. Apples and pears will be wanted faster than they can be grown, all the year round, and as they are produced of superior quality, they will largely supersede the use of oranges and other foreign fruits, for which we pay five or six millions per annum. And throughout all the summer and autumn months the strawberries, cherries, and plums, and the bush or "soft" fruits in succession, will be in increasing demand every year.

For the supply of the majority of these fruits the foreign competitor *stands but little chance*. Our strawberries, raspberries, ripe gooseberries, or mulberries, as we know, ought to be brought to table the same day that they are gathered, so that to be in perfect condition *they must be home-grown*.

As we have education now at work, spreading the knowledge of science, of sanitary laws, and of temperance truths in every corner of the land, the public will continue to cultivate a taste for the choicest of fruits, as far as they can afford them, as the easiest and pleasantest way to keep their health.

It has been estimated that at present the annual consumption of fruit does not exceed 6s. per head per annum, or, say, less than one farthing per day—surely a

supply, four times as large, of home-grown fresh fruit, would not be excessive?—whilst nearly all the medical papers are encouraging the consumption of fruit as food continually, so that the cultivation of fruit by cottagers may well be strongly encouraged also.

The cultivator of small holdings, as a rule, cannot compete with the large market gardeners and farmers in ordinary garden stuff; as potatoes and parsnips, onions and cabbage, may be raised at almost a nominal price by the big men who flood the markets often at ruinous rates, and in fact, nearly all common garden vegetables can be bought cheaper than they can be grown in many districts around London. There is no scope, therefore, for the cottager to produce the ordinary garden vegetable for *sale*, as the cry is nearly everywhere that “market-gardening is overdone.”

In fruit growing, on the other hand, there are several most encouraging features to be considered. The rapidly increasing array of retail shops throughout London, with their tempting displays of tomatoes, oranges, and all sorts of fruit in its season, serves considerably to promote the *demand*. It is the foreign imports that have induced the retailers hitherto to *double* the fruit shops in nearly all the leading London streets, during the last four or five years; and they are doing “the running” for the English growers.

It is the supply produces the demand. These fruit sellers now started, must keep their windows always filled with the most tempting displays they can find. All really good quality will thus find through them a ready outlet; and many of the smaller growers send direct to these fruit shops their more delicate produce.

The country towns will quickly follow the lead of

London, and fruit must go on largely increasing in consumption, not as a mere luxury, but as a necessity to secure the best health, however bad the times may be.

There are still one hundred and twenty millions spent annually for strong drink, and as fresh fruit contains nearly seven-eighths water on the average, it will be found that fruit may be made largely to supersede all sorts of drink. At any rate this large national drink bill can be "tapped" by the British fruit growers to the extent of some millions per annum, to the marked advantage of the whole community.

People, also, who want to keep their liver right, will try fruit breakfasts; and fruit growers thus can probably secure some of the many millions spent on tea and coffee. The use of these hot drinks is the chief "blocker," in fact, to the universal adoption of a fruit diet. As fruit becomes used as a food, buyers will order by the bushel, and there will be outlets increasing faster than any probable enlargement in the home supplies.

CHAPTER IX.

HOW ARTIZANS IN TOWN MIGHT BEGIN.

For those entirely without experience in gardening, we would say, "go forward, but go slowly and cautiously." It is needful to bear in mind that only once a year, as a rule, the various operations of each recurring season of fruit cultivation are required, and therefore, that at least two or three years of watchful experience is requisite, before one can have a ripe and sound judgment that can be depended on to guide in investing capital safely.

The young artizan or city clerk, wishing to start without any experienced helpers at hand, ought therefore to be mindful of the motto, "hasten slowly."

If circumstances are favourable for his remaining at some other occupation a few years, it would perhaps be as well to begin in a small way by selecting a small plot, in order to raise his own trees on some suburban allotment, at first, where he could run out once a week; or even once a month in winter will suffice, until his fruit plantation is well established. Let him have the ground thoroughly well and deeply dug, and, unless a rich soil, manured as heavily as can be managed. If acquired during the summer, such a plot might be worked over two or three times with a view to clear out

all weeds and to improve the texture of the soil. Then, at the end of September, commence to make a plantation of young fruit trees to stand two or three years till they are fit for finally planting out in the permanent orchard to be acquired later on.

The young pomologist might here plant a carefully selected assortment of the *safest* and best sorts of young trees called "maidens," of plums, mainly, with a few apples and pears. The larger part would be reserved for gooseberries, and red, white, and black currant bushes of two or three years' old. These he will be able to sort before planting and train in any shape he likes. The gooseberries and red and white currants can, or a selection of them, be partly trained up to one stem as "standards." Such will be found a very attractive form of cultivation, where they are trained with skill. The raising of such trees for re-sale is at times a profitable adjunct to the annual balance sheet.

As fruit growing develops there will be ample scope for many such enterprising young "nurserymen" throughout the kingdom to start. The plums and other "top" fruit of "maidens" or yearlings which will be obtainable, probably, at 5s. or 6s. per dozen, of local nurserymen, can also be selected so as to be "trained" in whatever shape may be desired. Standard trees that run up to a single stem four to eight feet may be preferred if they are not wanted for quick bearing, as these ultimately give the heaviest returns for orchards. If grafted upon *dwarf stocks*, the apples and pears can be trained either as espaliers, cordons, pyramids, or dwarf bush trees. Pears are usually grown as "pyramids" and apples as "bush" trees. The latter are perhaps the most productive of these, and are the

easiest to rear by those without previous experience. Apples will do well in any of such forms of trees, and pears are also adapted for cordons or espaliers, plums and cherries as bushes or "fanshape" on walls. Plums, however, do as standards, unless for choice sorts, like the best of the gages, which quite deserve to be tried under glass more freely (as well as the choicer cherries), or upon a wall with a sunny aspect, for the choicer sorts.

The plan, if he can wait, of raising his own trees would enable the young would-be cultivator to get the widest, first experience of elementary fruit culture at the smallest possible outlay. He might acquire, if he can find a practical teacher, a knowledge of the art of budding and grafting, as soon as his young plantations are available for these operations. Or, if hiring a very small holding should seem too large a venture, it might be possible to get some dependable allotment man to raise the same trees on his own plot, by paying him a rental in some shape that would not infringe any regulations as to sub-letting. This would be far better than to try and raise them in the smoky air of a London back garden. Many allotment growers would be willing to devote a small part of their plot for such a purpose, to acquire experience at the expense of another, in the same way as farmers raise farm and garden seeds for the London seedsmen by special contract.

CHAPTER X.

HOW TO START THE LADS.

THIS suggestion is mentioned so that even the youngest may be set thinking how he can *best start* upon practical fruit growing without capital.

“Where there’s a will there’s a way,” and as it is usually only the beginning that is hard, all are advised to make a start at once in some shape, if it is only by sowing a few apple or pear pips, or kernels of plums or cherries, and seeds of any soft fruits early in spring, in flower pots.

The young lad that can be induced to do that even, has put his foot possibly on the first rung of the ladder that will lead on to ultimate fortune. He may at least thereby acquire habits of patience and observation that will be invaluable to him in every condition of life, and the produce of his fruit pips or stones in ten or fifteen years’ time will become, if carefully trained, useful and valuable orchard trees. Possibly, if worthless for their own fruit, they will have been found suitable by the skilled fruit grower for having grafted upon them some well-known variety for which each may be especially adapted. And it may be that the produce of the pip or stone will prove a valuable new variety, as it is in this way that new sorts are produced.

If such seeds or stones could be got in quantity (uncooked, of course), it might be worth while to sow them between the young trees in the same rows, where they are not likely to be disturbed.

Pips of apples and pears can always be got from the cider and perry districts, and fruit trees raised thus from any seed on their own roots, are by some advocated as preferable.

In the Midland and Northern counties new varieties of gooseberries have been raised for many years past in this way, by artizans and others, by sowing the seed in spring. It can be at first stored in dry sand when cleaned, and most of our fruits may be thus improved upon by raising new seedlings.

For the purpose of grafting and budding, the young "stock" or scions may be got by the hundred very cheaply. It is necessary to know what sort of trained trees will answer best, and "work" them accordingly.

CHAPTER XI.

ENCOURAGING REFLECTIONS.

It may encourage the young outside cultivator of an enterprising turn of mind, if he well considers the striking fact that no branch of agriculture is, and has been for years, so entirely neglected as fruit growing.

It has become unfashionable and unpopular for farmers and men of leisure to grow fruit for market, since live stock and corn paid so well after the Corn Law Reforms, and from the days of the wars of Napoleon I., even to raise fruit at all extensively, except for cider and perry, has been given up as the orchards died off gradually. Upwards of three-fourths of our fruit-growing areas are, therefore, now, in the West of England, occupied with apples and pears only suited for producing these intoxicating liquors; and many of the cherry and other orchards around London have died out completely.

Again, the cultivation of our English orchards is carried on in much the same primitive style as two or three hundred years ago. There is, therefore, plenty of scope for all who will "march with the times," and cultivate with energy and skill every sort and description of fruit in suitable localities, especially all those kinds that cannot be shipped from abroad to compete

with the home growers, such as strawberries, raspberries, gooseberries, and currants. The foreigner manifestly cannot supply those fruits to advantage, as they cannot be kept twenty-four hours before they begin to perish; whilst most of the large farmers at home who have capital and large holdings, cannot generally so alter their systems of culture as to take up with fruit growing in combination with corn and stock feeding, *so that the small cultivators should have, virtually, a monopoly of the business.* They “hold the field” again for the future.

CHAPTER XII.

PRELIMINARY HINTS.

It is as well for the novice, as already hinted, to bear in mind that fruit growing is a wide term, and covers at least half-a-dozen different and distinct occupations. For it is the Specialists, or those following one branch only, who, as a rule, succeed best.

There are two great divisions—out-door, or hardy fruits, and forced fruits, “under glass.” The latter include, first and foremost, the vineries, in which our countrymen throughout the United Kingdom, produce the best grapes in the world. Then “wall fruit,” which usually includes peaches, nectarines, and apricots. In these fruits also our market growers beat all competitors.

“Orchard houses” would be greenhouses usually supplied with artificial heat, growing besides the usual “wall fruit,” pears, cherries, and other sorts of *choice* quality.

Figs, either trained from outside, like the vine, or in pots, are also grown under glass in increasing quantities. “Green figs” are sent here rather largely from Italy, Jersey, and France, and sell freely throughout the season. They grow easily out-doors along the South Coast.

Of hardy fruits, apples are by far the most important, but they are not so suitable for cultivating for small market growers as strawberries, raspberries, gooseberries, currants, or plums. The "bush fruits" (the gooseberry and currants) are well adapted for growing between plums, and these often go thus together. Strawberries and raspberries are the most largely cultivated by farmers, and are, in some parts of Kent and other home counties, quite a leading feature of land culture.

Cherries were formerly to be seen planted extensively on some of the large farms within twenty miles of London, and their names are still retained as designating some of the fields. They would pay well fifteen or twenty years after planting, even now, where the land is quite suitable; but the Morello is the only kind likely to be planted to much advantage by small cultivators. Cherries form almost a distinct and large business in some districts in Kent.

Pears can only be undertaken with profit by those who can wait for a crop, and where the situation is favourable. On the quince stock, or against walls, the best varieties answer well.

Nuts are likely to pay as well as anything, if the situation is favourable. Cobs and filberts might be tried if any likely soil and situation offers, but they require ten to twelve years before they are in their prime. A few young trees, as a *trial*, if a spare light corner can be found, ought therefore to be got in by all enterprising fruit growers, as they yield a crop in three or four years, and English filberts sell well in nearly all parts of the world.

Of all the "top" or "standard" fruits, however, nothing will pay quicker and better than a good selection

of dessert plums, of fruitful sorts, to mature or ripen in succession, from July to October.

It should not be overlooked that there is often a fashion in fruits, as in other matters. This is particularly noticeable with apples, each locality having its favourite sorts, which never "hang fire." The shops in country districts will not take a superior new kind, unless, at times, at a heavy discount from the value of well-known old varieties, for which they seem to have buyers for any quantity. These points must be well enquired about wherever any extensive planting is about to be carried out.

As a rule, *dessert* sorts, of good size that can be used either for kitchen or table, should be planted as freely as possible, whether of plums, pears, apples, or cherries, and large fruit of showy exterior is always preferred by the retailers to high flavour, but uninviting appearance.

If any method of protecting the spring blossom, and also the fruit, can be made use of till middle June, it will be well to have such available at any time. The blossom may be retarded by exposing the roots to a cold temperature sometimes; it may also be so invigorated by liquid or suitable chemical manure, as to carry the bloom through many a danger from frost. Experiments on these points may be of the greatest value. Salt applied in early spring will probably be found useful, and thus possibly save a year's crop.

If landlords would show more enterprise in planting fruit trees for small farms, it would give a great impetus to the matter; the farmers will not pioneer such a new industry when they see their landlords show no practical interest in fruit, as they think, if there were any margin of profit in fruit culture, sensible landlords, being able

to obtain the best technical labour, would have undertaken it largely long ago!

Probably the landlord's head gardener also would confess he knows far less about scientific hardy fruit culture, as a business for market, than about everything else in his profession—his vineries and peach houses, upon which thousands are spent, and his orchids or stove plants often monopolizing his main energies; and thus the leading landowners are kept quite in the dark as to the possibilities of profit from fruit culture.

The following may be taken as safe rules for all wishing to get the best results, without previous experience.

Don't overcrowd trees or plants. Good quality cannot be grown without plenty of room for air and sunshine.

Always select trees of known varieties, with hardy constitutions, that will be likely to crop well in *bad* seasons when fruit is scarce. Such apples as Lord Suffield, Bramley's Seedling, Lane's Prince Albert, or, amongst older sorts, Colonel Vaughan, and Cellini Pippin will nearly always bear good crops, and often pay to thin out. The three first-named some consider the finest in cultivation, although at present rather scarce. It is well to select prolific bearers, as there is a great difference in trees. The Colonel Vaughan, or "Scarlet Invincible," is one of the best in this respect, as well as one of the handsomest; a remarkably prolific apple in most parts. If large and attractive qualities in fruit can be combined for show and dessert purposes, they often fetch quite extra prices, especially pears on walls and late cherries. Choice sorts of these would both pay (where there is a good outlet) to grow under glass or on walls of wood specially constructed, with wide copings on the top, to be covered with old pilchard netting, as

protection from frost in early spring whilst in blossom, as well as, when the fruit is ripe, to save it from birds.

It is unsafe to judge of a tree from one or two years' experience, sometimes, either in regard to its good or bad qualities of flavour or productiveness.

As a rule, dessert or table fruit, if really choice, pays better than mere cooking sorts, and it is well to grow fruit, especially plums, that will combine both qualities, like the Victoria and Prince of Wales. Both are first-class "croppers," and equally suitable for dessert or preserving. These usually pay to thin out just before they ripen, and sell thus for cooking purposes, when they are highly cultivated.

As the art of hardy fruit growing is still in its infancy, and is not based much on science, it is worth while making experiments cautiously, and watching the results carefully, where it can be done without risk of outlay or much labour. Strawberries and raspberries, where they grow too luxuriantly, and make leaf and wood too much, will both do better, for instance, in some soils treated as annuals. Both may be safely transplanted about the end of March; while strawberries will do best, as a rule, with a very firm solid soil, and after being established should never be disturbed, except on the surface, under any circumstances. Of course deep digging and liberal manuring are requisite before planting.

Liquid manure from cesspools or manure tubs must be made use of as freely as possible, and all spare time in winter will be profitably occupied in supplying this to the roots of fruitful trees of every sort.

With a view to keep down expenses, and get the best results from the smallest outlays, all local advantages

must be made the most of. Old pine and leaf mould, where near woods; and when near the sea (old fishing nets for protecting the blossom), and seaweed for manure in some places, as well as fish offal at curing stations, can be got almost for the carting. Old spent tan, or refuse hops, or malt grains, where these can be found handy, are also useful manures. Where timber hoarding is available at a small cost and without carriage, protecting pits, or training walls can be made very useful at cheap rates.

The frames for forcing pits can be either glazed or covered with oiled canvas, or even with a cheaper jute web, called onion bagging, which may be got at about a penny per square yard, in wholesale quantity. If removed during the day, this will be found very useful for protecting wall fruit. Two lengths are usually fixed upon poles that have been fastened securely to the top of the wall at one end, and the other end of the pole is fixed into the ground about four feet from the bottom of the wall. It answers better still if there is a "coping" of glass or boarding of six to twelve inches, securely fixed, and projecting from the top of the wall, to which the web can be affixed and made tight, and then be secured at the bottom to prevent flapping by the winds, as this is the great drawback to nearly all such protecting material.

It has been well said by an old practical writer of the last century, "that no more fruit trees should be allowed to grow upon any farm than can be allowed the proper management necessary to promote the ends for which they are intended."

Another old author has advised the farmers to "be always sticking in a tree." But this is very doubtful

advice. Firstly, because great care must be exercised in selecting the right sort of tree, and, secondly, to merely "stick in" a tree, is almost certain to result in disappointment, if the object is to raise a good crop of fruit. If possible, the land should be carefully worked, and deeply dug two or three times, before any attempt is made at planting.

The best results will be usually obtained by those who spend most liberally for manure. Twenty to thirty loads per acre of good rotten stable manure should be given before planting any fruit orchard, and with heavy crops, fifteen to twenty loads annually might be applied with advantage as the fruit is swelling.

The land must be always well drained, and if soft water could be stored up for summer irrigation it would be of the greatest service. A good supply of soft or pond water is always invaluable in any branch of horticulture.

Some advanced cultivators in France, of less than half an acre are employing a steam-engine to give them a constant service of water. In fact, with water, air, heat, and moderate sunshine, or shade if needed, modern science should enable the cultivators of the soil to grow produce to fully four times the present actual return, whilst under glass there is almost no limit to the out-turn obtainable.

CHAPTER XIII.

PACKING.

AFTER mastering the cultivation, the packing of fruit is of the greatest importance. This can be best studied by an occasional visit to Covent Garden, or the other markets where foreign imports can be seen.

The Americans send strawberries in crates many hundreds of miles, by packing them in small square chip baskets, three tiers high. A slip of wood is put between each tier, and twelve to eighteen are packed in a tier in the crates. This should answer for all soft fruit for sending on long distances.

CHAPTER XIV.

PLANTING.

THE following are the quantities of trees required per acre for out-door fruits, at the distances named, as given in the catalogues of Messrs. Bunyard, Maidstone:—

At 24 feet apart, standards, 75 trees, cherries, apples, or pears
(bush fruit between).

„ 20	„	108	„	„
„ 15	„	half do. 193	plums, and smaller cherries, pears, etc., do.	
„ 12	„	dwarfs 302	apples or pears, pyramids, or nuts.	
„ 6	„	1,210	smaller do., do.	
„ 5	„	(bush) 1,742	gooseberries, on rich land.	
„ 4	„	„ 2,722	currants, and do.	
„ 3	„	4,840	small pyramids, etc.	
„ 1½	„	19,350	strawberries.	
„ 1	„	43,000	strawberries (first year).	

Planting can begin at any time after the fall of leaf, or say as early as possible in October, and can be carried on in suitable weather, at any open season up to the end of March. Raspberries will bear a fair crop often, even planted in the middle of April.

Planting should always be done in dull weather, if it

can be managed, and when the soil is moderately dry, if on heavy land. Trees are likely to do best when they are planted early in October, or before December, as the roots are able to get a little hold then, before severe weather sets in.

There is often a great deal of mischief done by planting too deeply. If "dwarf" trees, the roots should be put in as near the surface as possible, so that the sun and manure may easily get at them.

When trees are not giving good crops, they can be often greatly benefited by careful "root pruning" or transplanting early in October or November. To do this pruning the trees should have a trench cut round them at two to ten feet from the trunks, according to their age, and after all the wood roots are carefully cut all round, a dressing of manure or old decayed turf will do good. But root pruning may do injury to the growth of trees already fertile. If small trees must be moved during summer, this can be done without much risk when the ground is *well* watered the previous night, in dull weather; and a wetted sack or cloth should be wrapped round the roots, as soon as they are out of the soil, till the tree is replanted.

CHAPTER XV.

GENERAL HINTS FOR PRUNING.

WHERE standard trees have been neglected they should be gradually pruned annually for two or three years, so as not to cut them about too much in one season. As a rule, all stone fruit is best left without pruning when the trees are well established, except to remove boughs that cross, and are too thick. Pruning of stone fruit should be done before March, so that the risk of gumming may be avoided after the sap begins to rise.

Each description of tree almost requires special treatment amongst standards; as a rule it is well to use the knife sparingly. With espaliers, pyramids, and cordons, they are best if "pinched" early in July, unless of very weakly habit, or in poor soil, when they should make as much growth as possible during the summer, and be cut well back in early winter, or at the autumn pruning. Bush or dwarf fruit trees may be thinned out as soon as the fruit is picked, and they should be pruned after the fall of the leaf.

The best cuttings can be planted for propagation; if "standard" trees are wanted, all the buds should be cut out except two or three at the top. The cuttings can be put in four or six inches deep, in rows about a foot apart, and six inches off in the rows.

Raspberries require to have their young growth thinned out in summer, and in early spring all the old wood should be cut out entirely, and the new wood may be shortened six inches, if required. Other details as to pruning will be found later on, under the heading of each of the separate fruits respectively.

It will be found that nearly all fruit trees, including apples and pears, can be raised from these "prunings" or "cuttings" on their own roots, and there are some experts that maintain the best results are obtainable by this method of propagation, without recourse at all to budding or grafting.

CHAPTER XVI.

DISEASES AND ENEMIES OF FRUIT TREES.

THERE is at present no prospect of protection by law from those who neglect their orchards and spread pests and vermin around their neighbours. No "*Contagious Diseases Bill for fruit trees and bushes*" has yet been introduced into the "House," so it would be well to select those situations and districts where there are fewest ravages from American blight, caterpillars, or other destructive insects. It will be far better to evade and avoid all such risks, whenever possible, rather than have to fight the uphill battle of trying to eradicate them. Prevention is in such cases infinitely better than cure, and wherever such dangers are to be feared, it is well to be on the alert in advance.

We may bear in mind that all insects that *suck*, can be smothered by rubbing on the parts, cotton seed or other cheap oil, and those that *eat* will be effectually coped with by a thorough washing of the trees two or three times a year with a solution of a cheap arsenic poison known as "Paris green," say 1lb. to the 200 gallons. Orchard trees can be syringed with a garden engine.

For the apple moth on fully grown trees, a band of

paper or rag round the stem of the trees, covered with a mixture of tar and cart grease, is also recommended. If put round by the end of October, and renewed every week, if needful, for a few months, this will catch the female moth as it rises to deposit its eggs.

Quick (powdered) lime is one of the most useful preventives to nearly all complaints of fruit trees. It will protect apple trees from winter moth, and will save the plum and currant buds from the birds, if carefully scattered monthly during winter over all the branches.

It is needful to exercise all the caution possible in *advance* in grappling with this question of the diseases that affect fruit trees. The entire year is lost if the trees have lost their crops, and even that of next season is usually imperilled, if the leaves are much affected or eaten by caterpillar or other pests; whilst the buds cannot mature well if the insects have infested the leaves. To be forewarned is to be forearmed.

Powdered sulphur is a splendid specific for mildew, and should be applied in advance whenever expected to prevail. It is equally good to keep off red spider in the greenhouses, if scattered over the pipes or on the window sashes in summer (inside).

By all means *study to prevent diseases and depredations* from all the foes of fruit-growers, by studying and watching the most likely dangers ahead; and lock the doors *before* the grapes are stolen, when you grow them.

CHAPTER XVII.

SELECTION OF SOIL.

WHERE there is a choice of soils for fruit growers, an old grass pasture, or some rich marsh land, with a good supply of water (in any case), will be found the best. The first spit of soil below the turf of pasture is the most valuable of all "mould" for vine borders or composts; also for raising tomatoes, cucumbers, etc. Wherever such turf can be got it should be carefully piled away in heaps to decompose for a year or two, when it becomes the best soil for potting fruit trees, or any other purpose, wherever superior compost is required.

CHAPTER XVIII.

SELECTION OF SITES AND SOIL.

As a rule, the highest rented land will be the best value for fruit-growing, but the "*aspect*," or site, is as important as the quality. All stone fruits do well on a chalky sub-soil. Uplands are better than valleys.

The fruit must be adjusted to the situation, therefore, and it will be safest to grow apples, pears, and cherries, only where there is some prospect of the fruit blossom being protected, both from easterly winds or the early scorching sun. For this reason westerly and north-westerly well-protected aspects, will often give the best crops, when fruit is scarce in other districts. If a small freehold can be got, or say ninety-nine years' lease, with a good water supply, within easy distance of rail, this would include the three most essential points for security and ultimate success. It is as well to select a district fairly honest, or your crops may disappear before you can gather them.

CHAPTER XIX.

SELECTION OF SORTS.

ALL the fruit gardens in the district must be then carefully watched, and whatever has prospered in them should be taken note of. If there are no such guides available, plant cautiously of those newer varieties which have plenty of vigour of constitution, and that are rising in reputation, rather than old, worn-out kinds.

The superiority of American fruit is attributed mainly to the *newly*-raised varieties, and to the fact that growers have not lumbered their orchards with reputable old sorts, such as have no present stamina or hardiness.

It is well to bear in mind that the vitality of fruit must be maintained by improving upon worn-out old strains, as some old kinds in repute a hundred years ago are now completely worn out. This is the case in many districts with Ribstons and Quarrenden apples; the most profitable kind, where they succeed well.

CHAPTER XX.

APPLES.

FOR general utility there are none of our hardy British fruits to come near a good dessert apple tree, in full bearing. Of about 1,400 distinct varieties shown at the Chiswick Congress, in 1883, a large majority were only of local reputation or of uncertain or inferior merit.

Orchard apples, however, cannot be generally recommended for planting on small holdings, as the standard trees often take twenty years to get into full profitable bearing, and the other systems of growing apples are not yet tested sufficiently in ordinary market culture, whilst the risks of the fruit not coming through all the dangers of frost, etc., as a general rule make the returns quite uncertain. For bearing early, and to obtain a supply for home consumption, a half-dozen each of three or four sorts should be planted of pyramid, cordon, dwarf bush, or espalier trees, of such safe bearers as Irish Peach, Kerry Pippin, King of the Pippins, and Sturmer Pippin. This last is one of the best of late dessert apples, and another is "Court Pendu Plat." Although not of large size, Colonel Vaughan is a fairly good keeper till November, and a prolific handsome striped fruit, that should be included in every collection

of standards. The following are also good dessert sorts of first-class reputation:—Red and White Juneatings, Red Astrakan, Quarrenden, Calville Rouge, Cox's Orange Pippin, Yellow Ingestrie, Ribston Pippin, Duke of Devonshire, Beauty of Hants, Baddow Pippin (or D'Arcy Spice), Baumann's Reinette, Duchess of Oldenburgh, Reinette du Canada, Mannington, and Old Nonpareil, also Ross and Scarlet Nonpareils, Claygate Pearmain, Yellow Winter Peach, Margil and Cockle and Sturmer Pippins.

Of culinary apples, the best are Keswick Codlin, Golden Noble, Lord Suffield, Wellington, Dutch Mignonne, Beauty of Kent, Ecklinville Seedling, Frogmore Prolific, Cellini, Stirling Castle, Lord Grosvenor, Peasgood Nonsuch, Prince Albert, Worcester Pearmain, Domino, Bramley Seedling, Hanwell Souring, Deux Ans, Cobham, Gooseberry Apple, and Blenheim Orange; the last two are equally good in their seasons as dessert fruit.

As the foreign supplies of fresh and dried apples increase, it is probable that the best of the early and very late dessert kinds will only pay to cultivate. There are some good local sorts that are so hardy and prolific, that for country markets they should be always included in every cultivation.

Cox's Orange Pippin, sometimes a "shy" bearer, must be planted, being the "prince of dessert fruit," where it does well. The newer sorts, like Lord Suffield, Ecklinville Seedling, and Lane's Prince Albert, will be found much more prolific than the old "Blenheim," which, as a standard, often takes over twenty years before it bears a fair crop.

Unless ample room can be found for storing, it will

be far better to grow for market mainly of the early maturing sorts that can be sold off direct from the trees. When grown of good quality, choice, early dessert, of such old favourites as Red Astrakan, Irish Peach, Kerry Pippin, Duchess of Oldenburg, and Quarrenden give the best results everywhere.

If it is decided to form an orchard of standard apples, a very careful survey should be made of those in the district, and the selection should be made from all really good bearing, hardy favourite sorts. Bush trees should be grown between these "standards" of those kinds yielding the largest of the early apples, or only such as give pretty certain and prolific crops, like Lord Suffield, Irish Peach, or Kerry Pippin. These sorts, if of fine samples, will always bring the top prices of the market.

The best qualities for specimen or exhibition fruit are Washington, Lane's Prince Albert, Calville Blanche, the Queen, and Peasgood Nonsuch. These are all even worthy of a wall, or an orchard house. In sheltered situations they pay well grown as cordons, as they would be found at least to equal, under liberal culture, the best of those imported from abroad. When American apples begin to come in, their showy appearance and size often cause home-grown fruit to be neglected. It will be well, therefore, to plant mainly of the earlier sorts, and not to raise too many kinds.

Where a good local reputation is found for any of the above, those should be largely planted, and preference might always be given for those kinds the leading fruiterers have "a good run" upon, in their respective seasons. Showy dessert fruit will often fetch three or four times as much as merely cooking sorts, when there is a fashionable trade to be catered for.

The system of growing on dwarf or bush trees has many advantages, and as it is very widely adopted in France for the best dessert fruit, it should be tried more generally here. Mr. Barron, the Superintendent of the Royal Horticultural Society's Chiswick grounds, highly approves of this method for apple culture, and has largely grown these trees some years past.

By this system the trees are under perfect control, as to pruning, picking, and cleaning from insect or disease; the crop can be gathered without bruising and without the use of ladders; and it can be thinned out easily, whenever thought desirable to ensure fine quality. As these dwarf trees are grafted upon the "paradise" stock, the roots are mainly surface feeders, and they can, therefore, be mulched or dressed with manure at any time, as they have any special need for it. The quality of the crop can thus be brought up to almost any required degree of excellence, with fairly favourable weather. And, finally, by cultivating this description of tree, they give a fair crop the second year after planting, and when some simple and efficient mode of protecting the blossom from frost and blazing sun is adopted, we may be able to *depend* upon such trees to produce a crop of fruit annually, although not a heavy one. The cottager will find this a most interesting mode of cultivating the finer sorts of apples, and the wind will not do the damage that it often does with trees of large sorts especially. Of course such choice fruit will sell best, and if carefully packed in flat boxes, they will be sold by the dozen at top prices.

Espaliers, cordons, or pyramids bring the same early cropping results, and with a little care in pinching in early summer and autumn, and winter pruning, these

trees will be found profitable and attractive, and pleasant modes of growing. Root pruning with such can be easily carried out after October, to increase the fertility if needful.

The situation must not be too exposed, whilst low lying ground, or a deep valley, is even more objectionable.

CHAPTER XXI.

PEARS.

WHEN fruit becomes more universally appreciated as food and drink, good dessert pears will undoubtedly take the foremost place amongst our hardy fruits. Already it is found that no produce pays better than such prolific bearers as Pitmaston Duchess, Louis Bonne of Jersey, or Beurré Bosc, three of our best late autumn kinds, which sell freely at 12s. to 16s. per bushel. Some of the larger sorts, like Pitmaston Duchess, Glou Morceau, Alex N. Lucas, Princess, Duchesse, Beurré Six, and Emile Heyst, will fetch considerably more when well grown. These very large pears are especially adapted for cultivation on the cordon or espalier system, by which they are protected from the effects of the wind and stormy weather. On the quince "stock," also, such trained trees are much more dependable than the old orchard standard for their general fruitfulness. This is the method of culture generally pursued abroad, and pears are the only hardy fruits in which British growers are beaten.

At present, pears are by no means a generally popular fruit with our growers for market. Unless the varieties are very carefully selected, there are too many drawbacks

for the cautious beginner to risk them. On the other hand, really good varieties being decidedly the most luscious of all our hardy fruits, if well grown, will be found very profitable crops, *when they get into full bearing*, more especially in suitable districts in the southern counties, as any quantity of good samples can be readily sold. On the old plan of "standard" trees, it usually required fifteen to five-and-twenty years to get a pear orchard to give profitable returns. With the "dwarf" system on cordons and espaliers, they are, however, sometimes found bearing fair crops the first year after planting.

Pears can be grown of really good varieties, successively in season, from July till March or April. Where the soil is really suitable, therefore, a careful selection of the best market sorts that are found to suit the district should be made, and *if there is space to store until they are nearly ripe*, these might include a supply of the best of the larger kinds that are most likely to mature in succession throughout the season.

It is, however, desirable that, at first, only the most hardy and popular prolific sorts should be tried. Although there are upwards of 2,000 distinct varieties known to the home and foreign nurserymen, there is *only one* "William" (*Bon Chretien*). This is the leading favourite here, known in America as "Bartlett," both with growers and with most consumers, because it is one of the most prolific, and because it has such a distinctly sweet, fragrant, musky flavour, and melting luscious texture. Its season, however, is so short, that in good pear years there is at times, whilst it lasts, quite a "glut" in the wholesale markets, partly from foreign supplies, which mature a week or two before our own crop.

Pears that ripen during December and January, and later, of large sorts suitable for Christmas dessert, would give better results for growers who intend supplying the London and other large central markets.

The trade is always open also for all the best good early sorts, if well grown, like Citron des Carmes and Summer Doyenné. The former is a hardy regular cropper, and makes a grand standard, having borne, in 1889, an average of fourteen bushels per tree on five trees, probably about fifty or sixty years old, at Mr. Williams', of Morden Lane, Blackheath. Like many other summer pears, this is a poor keeper, and it is best eaten as it falls from the trees. The above grower, therefore, spreads straw thickly for them to fall upon, and lets all the crop ripen on the trees, owing to their great size; quite as an exception to the rule of careful hand-picking.

The best early pears for succession and safe cropping are Citron des Carmes, Beurré Giffard, Jargonelle, Beurré d'Amanlis, William, Souvenir de Congres, Gratioli, Belle Julie, Louis Bonne of Jersey, Made, Treves, Alexander Lambre, Gansel's Bergamot, Beacon, Marie Louise, Beurré Superfin, Doyenné du Comice, Beurré Bosc, Pitmaston Duchess, and Thompson's.

The best twenty-four late pears are, Passe Crassane, Beurré Rance, Chaumontel, Fertility, Winter Nelis, Glou Morceau, Beurré Clairgeau, Olivier des Serres, Beurré d'Alençon, General Todleben, Easter Beurré, Joseph de Malines, Madame Millet, Prince of Wales, Sterkmans, Beurré Hardy, Emil d'Heyst, Urbaniste, Prince Napoleon, Nouvelle Fulvie, Ne Plus Meuris, and Beurré Diel.

Although not so popular as formerly, there is no

more profitable pear for growers to plant on the South Coast than the "Chaumontel," in any district where it thrives and ripens well. It is largely grown in Guernsey on pyramid and cordon trees, and on the south coast of Sussex very prolific crops may be raised nearly every year on standard trees.

The famous French Duchesse d'Angoulême is quite unrivalled in its season, but it is very rarely produced of good quality in England, unless on a wall in a very sheltered situation. Where pears are grown under glass this is, however, one of the most desirable sorts, with Doyenné Boussoch, Glou Morceau, General Todleben, Beurré Superfin, Pitmaston Duchess, Souvenir du Congrès, and Doyenné du Comice.

For stewing, the best varieties are Cattillac, Uvedale's St. Germain, Vicar of Winkfield, Bellissime d'Hiver, and Gilgil—all hardy sorts.

The St. Germain is the same as that exhibited as a show pear from abroad in the London fruiterers' for Christmas decorations as Belle Angevine. It would pay to grow in orchard houses, as well as the Grosse Calabasse, which is often used for dessert, as the Belle Angevine is sometimes let out for "show" for Christmas parties, or sold at 20s. to 30s. per pair, when very large.

Pears require almost similar treatment to apples as to pruning. The trained trees should be treated according to their vigour of constitution, and those that are running too much to wood should be well root-pruned every two or three years; whilst some of the best are only grown to perfection on a wall.

As the summer pears are mostly bad keepers, it is well to have them packed carefully, rather before they

are ripe, and they always sell best sorted according to size.

Amongst favourite market sorts not mentioned above are the Hessle (Hazel) Beurré de Capiaumont, and Marechal de la Cour, this last is a prolific, fine-flavoured pear, and one that grows quickly into bearing.

Pears must be selected for the season, the situation, and for their keeping qualities. Some, like the Jargonelle, are very wasteful, whilst the equally fruitful "Louis Bonne" is a far better keeper and in perfection, when shrivelled, after being kept dry for some weeks, as it rarely rots at the core.

Owing to the glossy nature of the leaf, pears do much better in towns and smoky air than apples.

CHAPTER XXII.

PLUMS AND GAGES.

PLUMS are amongst the most profitable of British fruits, where they do well. But in some districts on the west coast there are very few sorts that thrive. As they commence bearing quicker than most kinds of "top" or standard fruit, they should be planted wherever they are known to succeed. The prejudice against plums, because in good seasons they are worth next to nothing is mainly owing to the mid-season varieties being almost exclusively cultivated.

In Belgium, with a climate like ours, plums are often to be found in season from the end of June to the month of November.

We have in this country now some of the most prolific of the earliest varieties, which have been mainly sent out from Mr. Rivers' Nursery Grounds at Sawbridgeworth.

As regards late plums, our markets have been almost entirely supplied from abroad, during October, with the latest varieties; but there is no doubt that both the earliest and the latest sorts could be profitably cultivated in this country, and these it would be well to try more largely in all good plum-growing districts.

The greengage and other choice dessert sorts in many

parts are very shy bearers, and, as a rule, it would be well not to risk these on small holdings where there is any doubt about them, unless against walls, or under glass. There are other very fruitful varieties, like "Victoria" (quite the best all-round mid-season plum), which are almost certain to give a good crop in good situations; and if well cultivated, others may be depended upon every other year.

The best all-round varieties are, probably, Early Prolific, Czar, New Orleans, Ouillon's Goldengage, Denniston's Superb, Belgian Purple, Victoria, Jefferson's, Pond's Seedling, Coe's Golden Drop, Belle de Septembre, Grand Duke, Monarch, Sultan, and Black Diamond. Enquiry may be made for any local sorts—the latest of dessert heavy bearers—as these are likely to sell best, and if any of the late Continental sorts can be got, it will be well to make a trial of them.

Winter moth is the only insect (besides the summer aphid, mostly on walls) that troubles the plum. Birds will keep down the former. The aphid can be syringed with a weak mixture of paraffin and soft soap, or the young stems can be steeped in a bowl of the same solution.

CHAPTER XXIII.

DAMSONS AND BULLACE.

THERE are no fruit trees that produce a quicker return, and at a smaller risk of outlay, than these. They are almost certain and constant bearers, and have very few enemies or diseases to cope with. They may be planted in hedgerows, on banks, or when grown as bush trees they form, in a few years, very productive hedges and efficient protectors against the winds for ridge cucumbers or the more delicate species of bush fruits. They require but little cultivation, and should be largely planted where the best results are required on spare soil, at the least outlay of labour. As they come at the extreme end of the fruit season, there are few other fruits to compete with them, and now there are such prolific and superior new sorts in cultivation, they afford a specially safe start for the small farmer desirous to try fruit growing.

The best sort of damson is the Crittenden or Farleigh, which produces very heavy crops in clusters; then Frogmore, Shropshire, Bradley's King, Rivers' Early and Prune or Michaelmas are all good, and the last-named is in great favour in the North of England.

No one can fail to do well, therefore, with damsons, if these prolific sorts are planted in suitable districts, or

with bullace, where there is a good market, as both are, as a rule, such "regular croppers." There is also a prolific black bullace that is likely to be in good demand with consumers for preserving.

These fruits rarely require any pruning, when the trees are well established. Of course, if they sell well they will pay for manuring, which should be applied early in the summer as a mulching, unless the trees are grown on pasture-land, where a winter dressing would do best for all stone fruit, unless the grass is fed off, and then manuring is not generally required.

Bullace for dessert are preferred after a slight frost, but like damsons must not be left too long, or there are a good many "windfalls."

CHAPTER XXIV.

CHERRIES.

CHERRIES should be planted rather largely for market, or left alone entirely. There are only certain special districts where the cherry thrives as "standards," and unless they are planted in sufficient quantities to employ a bird "scarer," the crop gets robbed, in many parts, as fast as they ripen. At the same time, cherries are such general favourites, that they pay well to cultivate wherever they thrive, and a certain market can be looked for, whilst they travel better than most of our summer fruits.

Cherries were formerly grown largely in the Kentish suburbs of London, but such orchards have mostly been allowed to die out completely during the last half-century.

As the foreign supplies are always plentiful in the earlier part of the season, it would be better, where these are accessible, to plant mainly of the best of the later kinds, such as the Circassian, Late Duke, Florence, Napoleon, and Reine Hortense, which will realize sometimes up to 1s. 6d. and 2s. a pound, wholesale, for best dessert purposes. The "Morello" is a specially prolific and popular fruit, and thrives well on a wall with any

aspect. It can also be grown as a "bush," and where the soil suits (and this variety is not very particular) very abundant crops are got nearly every year. These are always in good demand for confectionery, etc., selling at 9d. per lb., wholesale, and upwards.

It generally pays to protect with old fish netting all good Morello cherry trees, as they will hang thus well into October.

The following are good kinds and heavy croppers: Adam's Crown, formerly largely grown in West Kent for a first crop; Bowyer's Early Heart, a prolific early cherry; Belle d'Orleans; Black Heart, early and handsome; Bedford Prolific, Turkey Heart, and Black Circassian, or Tartarian, two best black; Empress Eugenie and Governor Wood, two best early red; Reine Hortense, Planchoury, Elton, and Florence, four first-class late sorts. Napoleon and White Bizarreau are good market sorts, as well as nearly all the Duke varieties. On the Mahaleb stock, cherries can be grown as bush trees on the dwarf plan, and can be then planted at six feet to eight feet apart. These can be grown well in orchard houses, as they thus escape the risk of early spring frosts, our worst foe, after all, perhaps, in English fruit growing.

Cherries, under glass, are grown to perfection by Rivers and Son, and some of the trade consider that orchard houses, devoted to the best early sorts, would pay well. But local wants must be first studied, as well as the sharp foreign competition in early cherries.

CHAPTER XXV.

GOOSEBERRIES.

THIS is one of the most popular of our British fruits, equally enjoyed by the peasant and the peer, for the garden "quarter" of ripe gooseberries is often the most favoured haunt by the proprietor of many a country seat.

There is a very wide selection of popular sorts, and the artizan and rural gardener throughout the midland and northern counties have each their favourite prize varieties, many of them new sorts raised by the artizan or cottage gardener himself.

Gooseberries are often sold, as regards half the crop, in a green state, and thus the quality of the remaining half is much improved.

The pruning is done, as a rule, in the *early* spring, and consists in retaining all the more vigorous of the upward growing (white) new wood, thinning out where required, and removing or shortening the young branches that grow downwards. Thin out the old wood as much as possible without spoiling the shape of the tree, as the fruit is mostly produced on the younger shoots.

In districts where gooseberries are much affected by caterpillars it is best not to risk much of this fruit, as

there is a wide choice of safer ones for selection. When sold ripe, these are best adapted for supplying local markets, and when sent in quite fresh as required, they will be found a very profitable crop in many of the smaller country towns, being essentially a fruit for the million.

Besides the caterpillar, there are sparrows, linnets, and other birds that are great enemies to the gooseberry bush, some devouring the young buds during winter, and others the ripe fruit in summer. The best protection from birds is to have the bushes covered with fish or wire netting. Black thread is very useful strung up on the side from which the attack is made, and white hellebore powder is the usual remedy applied for the caterpillar.

A good dressing of rotten manure or guano, in the spring, is desirable, unless on tolerably rich soil, to bring a heavy crop of gooseberries to maturity. Red varieties are the most suitable for market. The best sorts include Champagne, Companion, Crown Bob, Lancashire Lad, Warrington, Keen's Seedling, Whinham's Industry, and Early Kent. The last two, and Yellow Golden Drop being amongst the earliest to ripen. Snowdrop, Shiner, Whitesmith, Leader, Pet, Greengage, London, and Rambullion, are also superior and large sorts.

CHAPTER XXVI.

RASPBERRIES.

AFTER strawberries, these form the most popular fruits grown by our large Kentish farmers around London, being in such extensive demand for preserving, by the jam manufacturers.

Raspberries are grown of splendid quality on some of the poorest soils in Kent, where fifty or sixty years ago it was supposed that no crops would pay for cultivation. As they commence to bear good crops the second year after planting, whenever there is a profitable outlet, a trial should be made by all who have the ground suitable.

This fruit is subject to but few enemies or diseases, and only needs to be kept from the birds as they ripen. It is produced on the young stems, so that the old wood is all cut out during the winter, and when growing too luxuriantly the suckers in summer are partially cleared away, four to six at each plant being left to ripen the wood well.

On poor soils, raspberries pay always for a good dressing of manure in the early spring. But they have a tendency to run too much to wood and leaf if over manured in good soil.

The Kentish raspberries are mostly sold at per ton on the ground to the "smashers" or jam makers, the farmer undertaking the cost of picking and sending them in large tubs to the factory. The prices range from £10 up to £30 per ton, in bad seasons. Of course, the smaller growers will do better by cultivating a local trade for dessert and other domestic purposes, where they can work up such a market.

The best varieties are Carter's Prolific. Baumforth's Seedling, Fastolf, Antwerp, Red and Yellow, and Merveille de Quatre Saisons (autumn-bearing canes). The two last are fruits for dessert. A new sort, Superlative, is highly spoken of. When grown for dessert, Yellow Antwerp should be included, as well as the autumn bearing sorts, and the fruit must be then picked like strawberries, with the stalk on. Owing to its delicate character, the raspberry should not be sent, except in tubs for preserving, to very distant markets, and dessert fruit should be picked as wanted into small punnets.

CHAPTER XXVII.

RED AND WHITE CURRANTS.

FEW crops pay better than white currants, where there is a good sale, at 4d. to 6d. per lb., which is the range of prices for good dessert samples. In many seaside towns the half-pound punnets of half white half red sell freely at 6d. each.

White Dutch currants ought to be much more freely grown for dessert. They almost invariably bear good crops, and hang well against walls or under carefully fixed close netting till the end of September, or October even, if protected from birds (like the red).

Both are cultivated in the same manner. They are pruned back severely near to the old wood, three or four inches being left only of the new wood on the top of each branch. In the summer the thickest of the young growth is often removed, to allow of the sun ripening the fruit, and to secure the proper development of the new fruit buds on the old "spurs."

The best soil is usually found in well-drained uplands, and in rich alluvial marshes, if not too heavy. Highly-cultivated sandy soil also suits them well.

Like raspberries, red currants are so largely used for jams as well as bottling, jellies, and for the kitchen

generally, that the demand is very much greater than for white. These are all such bad travellers that they should be mainly grown to supply local markets, although large quantities are received from abroad, where they are carefully packed in very shallow, large baskets, holding eight to ten pounds. They are thus able to reach the market, and consumers, in far better condition than similar English fruit, that is sent up in peck or twelve pound sieves.

Some of the new sorts of red currants are very prolific, on fine long stalks. The best kinds in cultivation are Raby Castle, Warner's Grape, and Knight's Early or large red, and two French sorts, La Fertile and La Versaillaise, and these are said to be abundant bearers.

There is one great drawback to red and white currants alike, that unless carefully kept from birds by netting they are terribly robbed. If the land will grow black equally as well as red, the black will, for these reasons, probably pay the best. When well established in *good* soil all sorts of currants produce good crops for twenty-five to thirty years, or longer. White pay small growers the best in moderation, being often neglected on the largest fruit plantations.

CHAPTER XXVIII.

BLACK CURRANTS.

THIS fruit has been largely produced by farmers, being one of the hardiest and safest grown. It is so popular for preserving, besides being extensively used for various other purposes, that there is generally a ready sale for all that can be produced.

The best site for the black currant is in moist situations, and on rather heavy land. Any good rich soil suits them well, if fairly drained, and they produce heavy crops often under the shade of orchard trees. The cultivation is very simple, as in good ground it needs little manure, and the pruning is confined to thinning out the old wood, and any weak shoots must be cut out well where too thick.

As the black currant drops its fruit as soon as fully ripe, it must be sent to market quickly when ready.

Lee's Prolific, or sweet fruited, is the best for dessert, and also has the credit of hanging well to the stalks. The other good sorts are Black Naples, Baldwin, and Prince of Wales. In suitable soils this is the most profitable of bush fruits, and it is certainly the favourite for preserving with the working classes.

In many districts cottagers adopt the system of tying

together the branches of the black currant in their gardens, because of its somewhat straggling habit. This, however, injuriously affects the ripening of the wood, and injures, therefore, the prospects of next season's crop. Black currants are sent to market in pecks (12lbs.), and sieves (24lbs.)

As the birds rarely attack this fruit, and as it is seldom subject to much disease, it can be freely planted, wherever the situation is favourable. Black currant home-made jam will also keep better than any other, and any surplus stock will find ready purchasers at the grocers'. This fruit is also especially suited for bottling without sugar; the writer has kept it two years perfectly sound.

CHAPTER XXIX.

STRAWBERRIES.

WHERE there is plenty of room, and a good sunny aspect, these are very profitable. As a crop can be gathered the first year after planting, where started before August, and as strawberries are rarely subject to disease, they are always likely to be popular products for small holdings. But unless a home demand can be depended upon or some other outlet is secured besides the wholesale salesmen, there is not a certain prospect for the small grower, unless for exceptionally good or very early fruit. The markets are, as a rule, so amply supplied with mid-season fruit by the large cultivators, that the small consignments get neglected, and many of the best trade buyers take only the boxes (unseen often) of the *well-known* large first-class growers. But for those small cultivators who have any special outlets, and where there is not such overwhelming competition as in London markets, no fruit answers better for small holdings.

Some growers do best by sending in their fruit direct to shops, hotels, or private customers; and therefore, when the soil is suitable around popular watering places or thriving country towns, strawberries can be safely

cultivated. The best results are obtained under glass, with or without stove heat. Good samples that come to market within just a week or two before the out-door ones, are often more sought after than a month or so earlier, when the weather is colder, and when there is not such a general town demand from various "society" demands. There is no reason why the market should not be supplied in succession, from the middle of June to the end of August, if sorts adapted to the district can be gradually selected.

The strawberry needs a damp, moist air, and therefore, some of the best samples of British Queens (our A 1 sort), are got from the borders of the Essex marshes, where dew and mists abound.

This last-named, and other first-class fruits of the same delicate type, are particular as to situation, and are rarely cultivated by the largest Kentish growers, who are farming light or gravelly soils.

But wherever it does well, the British Queen should be largely planted, as it is a prolific and very popular choice sort.

Sir Joseph Paxton is at present the popular favourite for both the farmer and the general British public. Owing to its *taking* appearance and its size, it will sell better than much choicer fruits for flavour, and as the Paxton is one of the best of croppers, and "travels" better than most kinds, it is no wonder that it is gradually superseding, with the untrained popular taste, other mid-season kinds of more merit, according to the connoisseur. Although of such sterling quality, it will not pay so well, in the average of years, as the best early kinds, whilst it is desirable, where there is a continuous supply to keep up, to select also some few of the best

late sorts, as the smaller growers often stand a better chance in supplying the market *before* and *after* the heavy consignments.

The first object being, however, to make his crops *pay*, the fruit grower will not plant largely of any sort that has not been thoroughly tested in his district on similar soil, and the Paxton will continue to be selected first by planters because of its good "all round" advantages, its size, hardiness, and prolific character.

The secret of strawberry culture is liberality with manure in early spring, and great caution as to keeping the soil solid, to encourage surface growth, with plenty of space between the plants, and the sites good for air and sunshine. The runners should be got in early—from April to August if possible—selecting showery dull weather. Besides a liberal mulching of long stable manure early in April or May, the best fertilizers, where such are easily obtainable, are a good dressing round the plants in October of old shoddy, tan, decayed leaves, or other vegetable refuse. All these will serve well to protect the plants during winter.

The runners should never be planted closer than eighteen inches in the rows, which should be three feet apart; whilst after the first year the more vigorous growers do best at three feet apart, and after the fourth year they should always be renewed. The Kentish growers, on ploughed land, plant fourteen inches apart, and thirty-two inches from row to row.

The best sorts are King of the Earlies, Laxton's Noble Countess, Sir Joseph Paxton, President, British Queen, Keen's Seedling (the favourite early) Crown Princess, Thury (or Garibaldi), La Grosse Sucree, Lucas, Waterloo, and Elton Pine. James Veitch is considered

a first-class variety in the Western Counties. Crescent Seedling (early), Jubilee (late), Sharpless, Dr. Hogg, A. F. Barron, Stirling Castle, Marguerita, and Auguste Nicaise, are good cropping varieties, but not so well known. Oxonian, Helen Gloede, and Loxford Hall Seedling are also favourite late sorts. Some of the Alpine improved kinds might also be tried for autumn bearing.

Every beginner with glass culture should first carefully study the methods of practical men.

At the first Strawberry Conference, held in London at the Aquarium, some good papers on strawberry culture were read, and these have been printed in the gardening papers during July, 1890. Crescent Seedling and Noble were considered the best early sorts, especially the latter.

Mr. Sharpe, of Virginia Water, is growing abundant crops on dark sandy soil, without manure. There are several districts in Essex where the finest qualities of British Queens are produced by both spade and plough cultivation, and liberal spring dressings. To prevent grit, long stable manure is used, which gets well washed and sweetened before the fruit matures.

CHAPTER XXX.

HOT-HOUSE FRUITS.

GRAPES.

To produce grapes to perfection is the height of the ambition of most young practical gardeners; and, with careful attention, no fruit is so likely to "pay" the market grower, if he only resolves to excel in their cultivation. But if the British fruit grower is to maintain his ground as the champion vine cultivator of the world, he must make trials carefully from some of the new sorts occasionally, to see whether the "Black Hambro'" and the "Muscat of Alexandria," for flavour and size, cannot be beaten, as these are to-day the *standard* black and white, or recognized leading sorts.

As we export grapes to nearly all the more wealthy seaport towns of North Europe, the English growers have obtained a connexion and reputation which will ensure, probably, a good outlet for all the first-class quality that can be produced near our eastern seaports.

There is, however, but little encouragement to-day for home consumption, for cultivating any but really well-grown fruit of fine flavour, now that foreign supplies, of excellent quality, are so abundant, throughout the last

four or five months of the year, at almost nominal prices.

Whilst we have the wealthiest of customers in the world, however, both home and foreign, to stimulate the energy and enterprise of the skilled cultivator, every grower near large towns, who is resolved to produce first-class fruit will, as a rule, find a remunerative outlet for all he can supply of early and of very late fruit. There are notable examples, in nearly every part of the country, that new grape growers can come quite to the front rank, after a few years' experience, and produce the best of quality without any previous apprenticeship.

To ensure a successful result financially, the cost of production must be kept down by the greatest economy in the erection of the vineries. Most of the best smaller growers were at first partly their own builders, bricklayers, and glaziers; or had a natural aptitude for carpentering, and employed journeymen to work under their own supervision. The hot-water apparatus is usually the most expensive part of a vinery, and often entails a good deal of anxiety before it is in complete working order.

The first two or three years, whilst the young vines are getting established, tomatoes or melons are raised in many new vineries.

The "borders" should be liberally supplied with a suitable compost of loam, lime dissolved, powdered bones, and a very little well-rotted manure, unless naturally on rich soil. The nurserymen supplying the vines, or a local experienced gardener, may be got to supervise this very important work, as well as to give hints as to the most suitable dimensions, and the most complete system of ventilation of the "houses" to be erected. A little

time spent in council upon these points in advance is very desirable, so that the enterprise may be carried through, at first, as nearly perfect as possible.

THE BEST SORTS.

In the selection of the vines a great deal depends upon the outlet for the produce. If there be any special local demand, the varieties most likely to serve the particular season required must be chosen.

As grapes are at present mainly valued according to their size, the Gros Colmar and Gros Maroc bring the longest prices, and the Duke of Buccleuch and Champion are the largest white. For quality the best whites are the Muscat of Alexandria and Mrs. Pearson; and Black Hambro', West St. Peter's, Mrs. Pince, Madresfield Court, are the best black; whilst Black Alicante and Lady Downe's Seedling are the best keeping grapes for Christmas.

There is no reason why grapes should not be grown for home use out-doors in the south, where there is a suitable sunny wall or other shelter. In former times out-door vineyards were established for wine-making in England, and there are now many improved hardy sorts that should come to maturity better than the old Sweet-water.

The following, perhaps, may be tried with least risk:—Black Cluster, Esperione, "Cambridge Botanic," Royal Muscadine, Black Frontignan, and Chasselas Vibert.

As the foreign supplies are now so cheap, it will not pay to grow these hardy sorts for the London market, but in favourable country districts they might be more

grown for home use. There is no fruit so universally liked and so wholesome for family use, and they can be kept fresh a long time, if cut with a part of the wood, to be inserted in bottles of water, with a little charcoal at the bottom.

Those who intend to grow only one sort for market will plant, of course, Black Hambro', or, if wanted late, "Lady Downes" or Gros Maroc. But for flavour, the Muscats, Frontignans, and the choicest of the Chasselas sorts will be selected.

WALL FRUIT.

PEACHES, nectarines, and apricots are usually produced only under glass, by market growers, because they thereby combine more readily, excellence of quality, certainty of crop, and control over disease, etc.

Apricots have been grown often by cottagers even out of doors successfully, and regular supplies were formerly sent up to the London market from the small growers of Oxfordshire; but the heavy imports from abroad now give but little chance to the home producer for market, except the production of really choice dessert fruit can be ensured under glass. For this purpose the growers have mainly turned their attention hitherto to peaches and nectarines; but orchard houses of carefully-selected apricots, planted out in suitable well-drained, light soil, where this fruit is known to succeed, would well repay the enterprising cultivator.

Peaches and nectarines, under glass, scarcely ever fail to pay well for those who can command the requisite time and labour to obtain a well-grown crop.

Some of the choicest of the fruit sent to London the last ten years has been grown by a firm of horticultural builders, who had no previous experience in fruit growing. The houses were erected in their building yard, the young bush trees (selected with great care from the leading nursery firms) were planted out in the well-prepared soil, which is enriched liberally with liquid manure, annually, after the fruit has "set." These are carefully thinned out to avoid that over-cropping which is so fatal to fine quality.

As the fruit is gathered it is wrapped in tissue paper and carefully packed in cotton wool in single layers, in mustard or other flat boxes, and often sent up direct to the leading West End and City fruiterers.

If the houses are "smoked" three or four times a year, and a liberal supply of "flour of sulphur" is scattered over the pipes and in the sunny corners of the house, insect pests and mildew will be kept away.

The summer pruning consists mainly in pinching back surplus young growth, and in thinning and shortening, to ripen all young wood, so as to ensure a well-balanced tree, with plenty of room for air and light to reach every part. The same treatment applies to nectarines, and where the soil is naturally suited to stone fruit, so as to ensure robust constitutions without over luxuriance, the careful cultivator around our large towns may safely embark upon a trial of these most luscious of all home-grown fruits. Good crops are also raised (where there are good walls) outside, with quite favourable situations and soils, if the blossom is protected by a broad coping fixed on the top of the walls, or by some light-protecting material, which must be well secured to prevent flapping by the winds.

THE BEST VARIETIES

Peaches, to ensure a successive three months' supply, are named in the order of ripening. Early Louise, Early York, Alexander, Belle Beauce, Grosse Mignonne, Royal George, Noblesse, Goshawk, Merlin, Sea Eagle, Princess of Wales, Gladstone, Alexandra, Noblesse, Late Admirable, and Lady Palmerston.

The best nectarines are Hardwicke Seedling, Pitmaston Orange, Pine Apple, Hunt's Tawny, Downton, Rivers' Orange, Lord Napier (the best, probably), Stanwick Elruge, Victoria, Humbolt, and Dryden.

The following are the best apricots:—Moor Park, Hemskerk, Blenheim, Gros Pêche, and Royal. Breda and Alberge are two hardy sorts suitable for open-air culture.

Wherever there is suitable wall space, or the means to erect a wall of boards with a wood coping over, at little expense, a few wall-fruit trees should be tried, if they are known to do well in the district.

In orchard houses, nectarines are amongst the most profitable of fruits. Those intending to plant such houses would do well to secure their trees two or three years in advance, and train them to the shape required, as well-established wall-fruit trees become expensive, compared with the cost of maiden cordons. The largest varieties should be selected, and both peaches and nectarines (if good) will realize 6s. to 9s. per dozen throughout the season, whilst double these rates are readily obtainable for extra good early fruit at Covent Garden. Nectarines of good size are every season becoming more popular, at similar rates.

FIGS.

WHERE a greenhouse is available, such as a cool fernery, figs are often found to be quite a profitable crop. They can be grown either as bush trees in pots, or planted out in borders, and trained up like vines under the glass.

If good-bearing sorts are selected, they will produce two and three crops per annum; in fact, some smaller varieties seem to be almost continuous bearers four or five months, when well established in congenial situations.

Figs thrive best in a soil that is not too rich. Chalky and rather light well-drained ground suits them best.

Where there is a ready sale near at hand the White Marseilles is of the finest quality, but this sort does not keep nor travel so well as the Brown Turkey or Brunswick. "Negro Largo" is a very prolific variety, and does well in pots. Black Italian is a constant bearer. There are other choice sorts obtainable at most large nurseries.

In warm situations, especially on the south coast at times, Brown Turkey figs thrive well out-doors as orchard fruit. Near Worthing there are several notable fig gardens, which bring good crops to maturity almost every year. On sunny walls, with a good, light, chalky, dry soil, figs are worth trying in all parts of the kingdom. Let the ground be well trenched, and a fair proportion of old mortar be mixed with the soil, if not on chalk, and get carefully-selected trees from dependable firms.

Figs have few diseases or enemies, but they are often liable to the young fruit dropping, either from the soil being undrained, or too heavy, or more frequently from

imperfect fertilization. In France and other countries, fig-growers resort to various artificial measures to prevent this. St. John is a new variety, said to be very prolific.

Well-grown hot-house figs will realise at market from 2s. to 5s. per dozen throughout the season.

MELONS.

THOSE starting on greenhouse cultivation will probably do well to try melons. The very large imports from Spain the last ten years have been educating the popular taste in the direction of this fruit, as Valencia green and yellow melons may now be found in nearly every town in the kingdom for several months of the year. These foreign imports are "doing the running" for the British growers.

A good trade is also done during the summer, and on to the late autumn, in Jersey melons at 2s. to 4s. each, grown under glass.

The cultivation is nearly as easy as cucumbers, and the varieties include some of very superior excellence, every district having its favourite sorts.

CHAPTER XXXI.

BLACKBERRIES.

SELL well in London and other towns as a culinary fruit throughout autumn. They make a jam that is second to none for flavour, when carefully preserved, and in America they are largely cultivated for market.

The cultivated bramble should answer well (if trained on wire fencing) as a good hedge; and some of the American sorts might do well here, although they are not generally highly spoken of in this country. The "cut-leaved" is a good "heavy cropper" of large and rich berries. "Kittatinny" and "Wilson Junior" are also recommended in some leading catalogues.

There is no reason why the common hedge bramble should not pay well on low-rented soils if well cultivated for the jam makers, who pay as much for them as for strawberries and other fruits. The shoots should be pinched back to about twelve or fourteen inches every year.

CHAPTER XXXII.

MULBERRIES.

THESE are one of the most wholesome and enjoyable of our later fruits, and ought to be more extensively planted. They do not bear largely until the trees are nearly twenty years old, when they carry throughout the autumn almost continuous crops of the most tempting of fruits. They require no cultivation, beyond thinning out the branches, and are affected with no diseases, and the fruit when thoroughly ripe will sell to the fruiterers at 8d. to 1s. per lb.

The Americans bottle or "can" this fruit to perfection by simply scalding it a few minutes, and packing it in its juice into tins, like tomatoes.

For market they should be picked quite black, and sent up in large punnets.

CHAPTER XXXIII.

MEDLARS.

THESE are the latest gathered of our hardy fruits, and sometimes pay well where they thrive. The medlar is very hardy, and requires but little pruning or other attention, beyond thinning out in winter. It bears as a bush or pyramid after the second year. The fruit is in season from October to December, and is picked a week or two before it is fit for eating, when it must be stored in a dry place.

The Royal is a new sort, very highly spoken of. The large Dutch and the Nottingham are good varieties also.

Medlar jelly is a delicious "conserve," not difficult to make, and is often quite equal to the more famous Guava jelly.

Medlar trees would also do as a fence, as it is said they graft readily on the "quick" or whitethorn. They are seldom a profitable crop unless marketed well, free from mould, if the locality is a populous one, as they are, as a rule, not much appreciated at present.

CHAPTER XXXIV.

TOMATOES.

THERE is no crop raised under glass that has given better results of recent years than the tomato. Several causes have led to this very marked increase in popularity, and these will continue to make it a popular product both with growers and consumers. But the enormous foreign supplies flooding the markets at 1d. to 3d. per pound from July to September, will induce the British growers to produce their crops, as far as they can, either before or after those months. The quality of the home-grown is always far superior to any yet received from abroad, and this excellence must be maintained, and if possible improved upon, by selecting the very finest of the many sorts now in cultivation.

The matter of flavour has not yet been sufficiently appreciated either with growers or consumers, and tomatoes are almost entirely valued by their outward appearance and size. As the demand is every year increasing for salad (and for dessert), the production of those more sub-acid flavoured sorts, like Carter's Greengage, Hathaway Excelsior, Blenheim Orange, and other small firm fruits must be encouraged. The larger favourite market varieties to-day are Perfection, Dedham

Favourite, Prelude, Hackworth Park, Trophy, Acme, and a great many other names mostly synonyms of these.

The secrets of success in tomato growing are in the proper attention to pruning or trimming the stems, and in the watering. Growers under glass often fertilize the bloom by going over the plants with a camel-hair brush. Being a gross feeder, tomatoes should not have too stimulating a soil till the fruit has set and begun to swell, and those who cultivate healthy plants with the least watering get the best crops, if grown on one or two leading stems in a good loamy mixed compost, mainly of fresh pasture soil. To increase their bearing, the first of the crop is picked before it is ripe, and then it is laid out on trays to colour in the greenhouse.

There seems to be an outlet for nearly all that can be produced at about 6d. per pound to 1s. per pound, of really fine quality, as tomatoes are the fruiterers' favourite produce for "dressing" their windows, as well as for their keeping properties. When the out-door crop comes on the market, sales becomes difficult at 2d., however, in good seasons.

"Plum" yellow tomatoes, an even-sized small sort, have been imported lately from abroad, and sell freely at 9d. to 1s. per pound during the autumn.

CHAPTER XXXV.

SMALL NUTS.

THE Rev. H. P. Dunster, a practical authority, says:—

“There are few small industries that give a larger return of profit than filbert growing, especially cob filberts . . . it is almost incredible how large a return can be made from an acre of ground, when a favourable soil and situation can be found.”

As cob nuts have been selling at 2s. per pound, at Covent Garden, the last two or three years, one can readily understand that *if* the right spot can be found there is a possibility of getting a crop to pay even £140 per acre, which Mr. Dunster speaks of as not at all an extraordinary return.

The best soils for nuts are to be found in Kent and some parts of Berkshire. It was at Calcot Gardens, near Reading, that a crop of one acre and a half realized £210, at market prices, and some of the best prize cob filberts are raised at nursery grounds in those gardens.

The chief points needing attention in the culture of nuts are the pruning and subsequent setting of the bloom. The nut bushes should be kept thinned out well, and hollow in the centre; and it should be carefully noted that a fair proportion of the male blossom

(the catkins) should be left on each tree. The pruning is a matter of the utmost importance, and should be done after the spring blossoming.

It would be desirable to try about half a dozen trees of a few of the hardiest and most prolific kinds in every district where nuts are at all likely to succeed. The best sorts for cropping and selling well are Cosford Kentish Cob, Prolific Cob, Red and White Filberts, and Merveille de Bodwiller, a good flavoured and very fertile sort.

Nuts have not many enemies, beyond the squirrels and moths. A moist climate and soil suit them best. They are said to thrive exceedingly well in many parts of Ireland.

One great advantage in their favour is that they can always be kept till a market can be found for them, and another is that, if not taken after heavy meals, nuts are found to be a nourishing and wholesome food adjunct, and every year they are fast increasing in popular favour.

They can be planted as hedges, to separate allotment holdings, and would serve admirably as shelters to break the wind where ridge cucumbers and other delicate vegetables are grown, and thus take the place of rye. The "prunings" of well-established nut walks will sometimes nearly repay the cost of the labour for their cultivation.

The demand for good English cobs is increasing from all parts of the world; America and India are open to take any quantity. They require ten to eighteen years to get into full bearing, and seem to require a special situation, as to soil, to succeed well.

CHAPTER XXXVI.

WALNUTS

Are worthy of more attention, where there is a suitable site for the proper setting of the bloom, and plenty of room for the raising of such forest trees. The timber is of course valuable; and as the nuts are generally in good demand, when young, for pickling, the cultivator has more than two strings to his bow.

This is a crop that is rarely troubled with diseases or other pests, and when once the fruit is well set is pretty certain to come safely to maturity.

As the standard walnut tree does not bear paying crops till at least five or six years after planting, the grower should be a freeholder, or possess a long lease. Dwarf French walnuts can be got to bear earlier, but they do not often produce paying crops in this country.

The experimenting young country fruit grower can sow a few walnuts in shells, the best he can find, in early spring, and in about twelve or fifteen years he will have trees, if they have plenty of room, that will be regularly producing good annual crops, without any expense as to cultivation. But where space is limited the walnut gives too much shade, to the injury of other plants, to make it a welcome guest in any garden ground.

CHAPTER XXXVII.

RHUBARB.

ALTHOUGH not a fruit, this "pie plant," as the Americans style it, can be grown profitably around nearly all large towns. It is frequently forced in the north by means of steam, a very large industry being introduced the past ten or fifteen years about Leeds, and other towns where there is any steam power available. Rhubarb is also widely cultivated near London, in the open fields.

The plants are subject to no enemies, and after the first year good crops are pulled every season during the spring, and occasionally in autumn for wine and jam.

The best varieties are Prince Albert, Victoria, Stott's Monarch, St. Martin's, Champagne, and Linnæus (the latter is best for flavour).

It thrives best in rich marsh lands, although with liberal dressings of manure it will do well in any good garden ground. Long stable manure is applied in small heaps to each root about February, which fertilizes the plants, and also protects the young stalks from wind and frost, and gently forces the crop.

When forced by hot steam pipes, rhubarb realizes occasionally £50 to £60 per acre; it pays well for liquid manure in the growing season, and is quite a *safe* cottager's product; although, when apples and other fruits are plentiful, it cannot be recommended for food.

CHAPTER XXXVIII.

CONCLUSION.

HAVING now concluded a running review of the various species of the kindly fruits of the earth, as grown in Great Britain, I append a few lists and extracts that may enable my readers to see how to set about starting upon one or other of the many branches of this neglected industry.

It may be well to warn the beginner not to indulge in too sanguine views, if intending to depend entirely upon out-door culture of hardy fruits. "Standard" fruit trees (apples, pears, cherries, etc.), should only be planted by the freeholder or landlord, and then only by those who can afford to wait ten years for an orchard crop.

Fruit from espaliers, cordons, or bush trees may be obtained in small quantities suitable for home use within two years of planting. Raspberries and the other "soft" fruits are the most likely to supply paying crops for markets for the small grower, with vegetables or strawberries grown between, if on well-exposed, favourable aspects, for a year or two.

The most eligible way to begin with greenhouse work will be to get a few cucumber plants started in houses

cheaply erected, or make experiments gradually in melons and tomatoes, maiden-hair ferns, and, perhaps, a few thousand pots of strawberries. After a year or two a vinery or peach-house can be tried, according to the most likely outlet for such produce. There must be a clear understanding of the details of marketing the fruit before the crops come to maturity, so that when ready, the best possible market may be obtained. This is a matter of the utmost importance, too often neglected by growers till too late. Figs, cherries, and choice plums and pears will all be grown under glass, in cheaply-constructed houses, as safe and profitable crops. Messrs. Rivers, Sawbridgeworth, are perhaps the most prominent firm in the trade at this work of orchard-house culture.

APPENDIX.

THRIFT IN FOOD TO START.

WITH many young beginners, one difficulty of fruit growing for market will be as to the first year's outlay; and the want of capital to work through the first year or two at the start, often deters the young aspirant for natural living.

For such as are anxious to know how to make the utmost possible progress on small means, a few hints as to the mode of living practised by millions of Russian and North German peasants may be useful. Having found by experience that, like the horse, they can keep up their strength on solid grain foods, they live mainly on (rye) black bread, with a handful of cherries, plums, etc., or, in winter, some dried prunes, or other fruit soaked overnight; or the Russians may use with their bread, mildly pickled cucumbers or beetroot in place of fruit, as a relish.

In this country good wholemeal brown bread would serve the purpose as a perfect or complete food, and wheat is a far superior grain to rye. Where good brown bread is unobtainable, if a mill costing about 15s. can be got, it would supply two or three families with the means to obtain the best of freshly-ground flour, and wheat, if bought from the farmer direct, need not cost over 1d. per pound, or say, $\frac{3}{4}$ d. per pound, if the farmer is handy and will deliver two bushels at a time. Then, with a little soup of well-cooked peas or lentils, blended with pearl barley, rice, or meal, a few herbs, and a liberal use of garden vegetables,

the average working man's living expenses might be cut down a half or more, and full strength, and often improved health be maintained.

By this means the young cultivator could keep down his out-goings to the lowest possible point, as his solid food would cost less than 2d. per pound (dry weight), and he would secure the healthiest and heartiest bread at a cost of 8d. per four-pound loaf. If this bread is made up in small roll fashion, quite unfermented, it will become very enjoyable alone, fresh every two or three days, as he will only eat when "dry bread hungry."

This method of living will be found to be far better as to results than the ordinary white bread and pork, butter, etc., upon which a cottager's family usually fares—a fare that scarcely any medical man to-day can support or defend for producing muscle, bone, or sinew. Fruit, as his purse allows, will afford enjoyment in raisins (in variety), prunes, figs, and dates, simply scalded, with a little apple stewed, or other acid fruit, to make it perfect, and nuts during winter.

If the cottager thus can resolve to start upon the most thrifty of all modes of living, he will be able to employ every possible spare farthing upon his fruit trees, or the materials for his garden frames and greenhouses. He will thus be able to tide over the anxious interval till his labours have been rewarded by a remunerative crop.

Taking man as a productive machine, and his food as the fuel that keeps the engine at work, it will be seen that the selection and cost of the necessaries of life are a matter of the greatest concern. It means all the difference often between success and failure, if he can reduce his outgoings fifty per cent. for food, without diminishing his working powers.

The experiment is, therefore, worth making, as would be any similar one proposed to cut down his outlay for heating his vineries. Recently the majority of the young men employed at the Royal Gardens at Kew were living upon a

similar economical fare, so it can scarcely be doubtful that it would suit all hard-working gardeners in any part of the country. If they are resolved at all costs to fight out this question of fruit-growing upon the most thrifty lines, there will be many glad to make use of these hints to start with the least possible outlay for food and drink.

COMPARATIVE LIST OF VARIETIES.

A Comparative List of the approximate numbers of distinct varieties of the different fruits cultivated in Great Britain, the length of time they are in season, and the average market prices. The fruits marked with a star (*) are most likely to answer best for cultivating for market purposes. Those marked with a dagger (†) would probably be most useful for those growing fruit for use at home. These distinct varieties are the produce of superior new seedlings, raised often by cross fertilization of good old sorts:—

Name.	Distinct Varieties.	No of Months in Season.	Average Prices.
†Apples	About 1,500	12	1d. to 3d. per lb.
†Pears	„ 1,200	8 or 10	1d. to 3d.; 6d. to 1s. for choice sorts.
†*Plums and Gages	„ 80	4 to 5	1d. to 3d. (Gages 2d. to 4d.)
†Cherries	„ 100	5 to 6	2d. to 1s.
†*Damsons	„ 10	2 to 3	2d. to 4d.
†*Gooseberries	Over 200	4	1d. to 4d.
†*Red Currants	„ 20	3	3d. to 4d.
†*White Currants	„ 5	3	3d. to 6d.
†*Black Currants	„ 10	2 to 3	2d. to 4d.
†Raspberries	25 to 30	3 to 4	2d. to 6d.
†*Strawberries	Over 100	2 to 3	2d. to 1s.
†Blackberries	„ 10	2	2d. to 4d.

Comparative List of Varieties—*Continued.*

Name.	Distinct Varieties.	No. of Months in Season.	Average Prices.
†*Mulberries	2 or 3	3 to 4	6d. to 1s.
†*Tomatoes	20 to 25	6 to 8	3d. to 1s. 6d.
†*Rhubarb	10 or 12	4 or 5	1d. to 3d.
Quinces	3 or 4	4 or 5	2d. to 3d.
Walnuts	10 to 12	8 or 10	2d. to 6d.
*Melons (under glass)	Over 50	6 or 8	6d. to 2s. 6d. eh.
*Apricots (ditto)	„ 25	4	2s. to 6s. per dz.
*Peaches (ditto)	„ 60	6	3s. to 20s. per doz. (2s. to 6s. from walls).
*Nectarines (ditto)	„ 30	6	2s. to 20s. per doz. (2s. to 6s. from walls).
*Grapes (ditto)	„ 150	10 to 12	8d. to 5s. per lb. (6d. to 1s. from walls).
*Figs (ditto)	„ 80	4 or 5	2s. to 6s. per dz.
*Nuts (Cobs and Filberts)	„ 30	8 to 10	6d. to 2s. per lb.

DESCRIPTIVE CATALOGUES.

Descriptive catalogues may be obtained, by intending purchasers of fruit trees, by sending stamped and addressed wrappers to the following firms, representing some of the principal nursery grounds of repute :—

- Messrs. Rivers and Sons, Sawbridgeworth.
 „ G. Bunyard and Co., Maidstone.
 „ Dixons, Chester.
 „ Cheal and Sons, Crawley.
 „ J. Cranstons and Co., Hereford.
 „ J. Watkins, Pomona Farm, Hereford.
 „ Waterer, Woking.

- Messrs. R. Smith and Co., Worcester.
 „ Cooling and Son, Bath.
 „ Laing and Sons, Forest Hill.
 „ Lawson or Dixons, Edinburgh.
 „ Veitch and Sons, Chelsea, S.W.
 „ Paul and Son, Cheshunt, N.
 „ W. Paul and Son, Waltham Cross, W.
 „ Lee and Son, Isleworth.
 „ Harrison and Son, Leicester,
 „ Peed and Son, Streatham.
 „ Carter, Page, and Co., London Wall, E.C.
 „ Lovell and Son (for strawberries), Driffild.
 „ Saltmarsh and Son, Chelmsford.
 „ Protheroe and Morris, Leytonstone.
 „ Cutbush and Son, Highgate.
 „ G. and A. Lane, St. Mary Cray.
 „ Todman, Eltham.
 Mr. Charles Turner, Slough.
 „ Charles Noble, Bagshot.

HANDBOOKS ON FRUIT CULTURE.

With the view to aid those wishing to read up the subject, we annex a list of handbooks on fruit culture, worth conning over carefully :—

Mr. Charles Whitehead's "Fruit Growing in Kent," "Progress of Fruit Culture," "Fifty Years of Fruit Culture."

Mr. A. F. Barron on "Vines and Vine Culture."

Rev. W. Lea's "Fruit Growing, or Small Farms," 1s. 171, Fleet Street.

"The Apple and Pear as Vintage Fruits," from the *Herefordshire Pomona*, about 3s. 6d. Jakeman, Hereford.

Mr. George Bunyard's "Fruit Farming for Profit," 1s. 6d. F. Bunyard, Maidstone.

Mr. Thomas Rivers' "Miniature Fruit Garden," 3s. "Orchard House," 5s. 6d. Longmans.

"Report of Apple and Pear Congress at Edinburgh, 1885," 2s. Maclachlan, Edinburgh.

"Report on the National Apple Congress, Chiswick, 1883," 2s. 6d. By A. F. Barron.

"Report on the National Pear Congress, Chiswick, 1885," 2s. 6d. By A. F. Barron.

Mr. J. H. Boddy's "Britain's Needs and Remedies : Story of an Acre and a Half," 6d.

Mr. Samuel Rawson's "Producer and Consumer," about 2s. 6d. Allday, Birmingham.

Rev. H. P. Dunster on "Fruit Farming."

Mr. Sampson Morgan's "How to Make the Most of the Land," 1s.

Dr. Hogg's "Fruit Manual," 16s. 171, Fleet Street.

"Out-door Fruit for the Million" (on root pruning), 6d. Memorial Hall, E.C., or 75, Princess Street, Manchester.

"A Manual of Injurious Insects." By Miss Ormerod. 3s.

"Johnson's Gardener's Dictionary," 6s. 6d. By Bell and Sons, York Street, W.C.

"Cottager's Calendar." By Sir Joseph Paxton. 3s. 41, Wellington Street, W.C.

Mr. J. Wright's Price Essay on "Profitable Fruit Culture," 1s. 171, Fleet Street.

"Our Hardy Fruits," 6d. Eyre and Spottiswoode.

Hibberd's "Amateur's Greenhouses."

Thompson's "Gardener's Assistant."

London's "British Fruits."

Cassells' "Popular Gardening."

HORTICULTURAL WEEKLY JOURNALS.

A list is appended of all the horticultural weekly journals published in London, with prices and publishers' offices, where they can be obtained by all newsagents or others:—

The Garden, 4d. 37, Southampton Street, W.C.

Journal of Horticulture, 3d. 171, Fleet Street, E.C.

Gardener's Chronicle, 3d. 41, Wellington Street, W.C.

Gardener's Magazine, 2d. 148, Aldersgate Street, E.C.

Gardening World, 1d. 17, Catherine Street, W.C.

Gardening Illustrated, 1d. 37, Southampton Street, W.C.

Amateur Gardening, 1d. 143, Aldersgate Street.

Garden Work, 1d. 171, Fleet Street, E.C.

Horticultural Times, 1d. 127, Strand, W.C. } with good fruit
(also) *The Northern Gardener*, 1d., Manchester. } articles.

Most of these journals have original articles, specially on fruit-growing, nearly every week by practical gardeners. These "weeklies" all afford good hints, from time to time, to the intending fruit-growers, and one or more should be taken in and exchanged with other cultivators, if convenient.

FRUIT GROWING IN KENT.

The following extract, taken from a horticultural journal, seems to show such strong confirmation of what has been written in the foregoing articles respecting wall fruit, that it is hoped that any doubters, who are able to do so, will go, and, as suggested, judge for themselves, by a trip to Bexley, one of the most prosperous of the fruit-growing suburbs of London. A whole day may be spent there in visiting Messrs. Burton's, Ladd's, Septimus Browne's, Bell's, Dodd's, Tuffin's, and nearly a dozen other establishments in the district. Strawberries, grapes, tomatoes, melons, as well as wall fruit, may all be seen in their respective seasons, grown to perfection by cultivators who have mostly raised themselves, solely by their own industry and skill, to positions of independence by producing fruit and flowers, under glass, for the London market:—

“Messrs. T. Burton and Son, Edith Road, Bexley Heath, Horticultural Builders, have turned their attention to growing as well as building for some time past, and “nothing succeeds like success,” seems to be here exemplified to the fullest extent, especially with peaches and nectarines. The large span-roofed house, 24 feet wide by 100 feet long, and ventilated with improved gear, has twenty-two large standard trees loaded with fine fruit. So well have these trees done that Mr. Burton had to widen the house; the trees looked more like half-standard apple trees, so loaded were they with fruit, and the present season's growth gave ample proof of the healthy condition of the trees. Another portion of this house, more recently added, had been planted with trained trees

“A span-roofed house 220 feet long, 12 feet wide, inside measurement, was planted with peaches and nectarines, fan trained, seventeen trees on each side, twelve feet apart, with all the best sorts for succession, which give a supply for over three months from the commencement of gathering. Only the earliest sorts were gathered in this house, which was carrying a splendid crop of the varieties named.

“We may just state here that if Mr. Burton has made any mistake in the cultivation of peaches and nectarines, it is in having the crops on some of the trees a little too heavy.

"All who wish to enjoy this fine show of peaches, nectarines, etc., should pay a visit about midsummer and see for themselves, as Messrs. T. Burton and Son do not wish to 'hide their light under a bushel,' but are willing to impart to visitors any information they might be seeking as to the construction of the houses, and the varieties most suitable to grow of peaches and nectarines, which are made a speciality there."

FRENCH MARKET GARDENING.

The following is taken from a pamphlet on "French Market Gardening," by Mr. H. M. Jenkins, the late secretary of the Royal Agricultural Society. It shows clearly to what a pitch of productiveness land in such temperate climates as our own can be brought. It was written nearly ten years ago for the "Royal Agricultural Society's Journal" for 1880; and the whole of this article is worthy of careful perusal:—

"The market gardens within the '*enceinte*' of Paris occupy an area of nearly 3,500 acres. The largest are about 2½ acres in extent, and the smallest are scarcely more than an acre. The gardener is not often the owner of his land, and the rent paid varies chiefly with the distance of the garden from the central market (*Halle*) of Paris. Each garden has attached to it a dwelling-house, a stable, a cart shed, and an elevated reservoir of water, generally supplied from a well, the water being pumped up daily by horse-power. An abundant supply of water, which can be economically distributed as required by means of numerous hydrants and attached rose, is an essential element of success, and forms invariably one of the most important adjuncts to the garden. The system of cultivation is essentially a forcing one, with a view to bring vegetables of all kinds, very early in the year, to the Paris market. The land itself plays, comparatively speaking, a subordinate part in the growth of the crops, its place being taken by a mixture of earth and compost manure known as *terreau*, which cannot be properly made in less than four years, and beneath which a layer of long manure is placed. The garden is, therefore, a great hot-bed covered more or less with glass in the coldest months, but of course open to the sun and air in summer.

"The first garden which I visited at Vaugirard is in the

occupation of M. C. Lecomte, and comprises 1 acre 16 perches. The rent is £56 per annum, and the annual expenditure for manure is £96. The plant, including bell-glasses, frames and lights, implements, horse, etc., had cost between £600 and £650.

"The next garden I visited was in the occupation of M. Laurent, who rents 2½ acres of land, including house, etc., at £120 per annum. His stable manure cost him £200 per annum, under a series of contracts, at rates varying from 1½d. to 2d. per horse per day. This plant is said to be worth £1,400, including the cost of a machine for warming frames with hot water instead of manure, for the purpose of growing early carrots, and £200 for hand-glasses and lights for frames. He has three courses of cropping, viz., sows turnips (*Navets de Vertu*, race *Marteau*) at the end of January and beginning of February; in May he plants melons as the turnips are sold, and then pricks in cauliflowers between the melons. After the melons are sold, corn-salad or winter spinach is sown between the cauliflowers, which are marketed in the autumn, and the land is cleared during the winter."

BOTTLING BRITISH FRUITS.

FRUIT can be "bottled" (or canned, as it is termed in America) in two or three ways; either by boiling or baking it before it is put into the bottles, or by filling the bottles with the ripe, raw fruit, and boiling in a stew-pan of water filled up to the necks of the bottles. All these methods are described here; the last mentioned looks best when done, but is the most trouble; the baking plan gives the least trouble, and is equally effective if the sealing process is carefully attended to. Dr. Trall's method of making flannel air-tight seems to be the best for this purpose, where the fruit is wanted to keep a long time and in large quantities.

The jam-makers, who boil down fruit alone in summer into pure "pulp," for after use, adopt a system of sulphuring the jars; this is also the ordinary method in German families. Flower of sulphur is melted in any old saucepan, and then bits of rag are dipped into it, and allowed to cool.

The jars are placed bottom upwards on the table, one side slightly raised, and the sulphur rag is lighted and allowed to burn until the bottles are filled with fumes of sulphur. This most effectually destroys all the "germs," and the boiling fruit should be at once filled in; but if the bottles can be placed in an oven, or boiled in a copper, the same object is accomplished. The "sulphur process" is the safest plan when very large earthenware jars are used. The sealing process must not be omitted, unless covered with half an inch of oil, or of the melted wax composition, as noted below.

The three points needful, to attain perfection in this art, are, therefore, only to use perfectly germ-free bottles; secondly, to get all vitality and germs in the fruit entirely destroyed by heat; and thirdly, to make the bottles quite air-tight, immediately they are filled. A few experiments will soon make perfect, if these three points are carefully attended to.

The fruits best suited for bottling are plums and gages of all sorts; cherries, like May-dukes, Morellos, or other dark culinary sorts; ripe red gooseberries, like Warringtons; currants, red, white, or black, and raspberries. The stone fruits probably do best of all; especially when got perfectly ripe, and with unbroken skins, and unblemished by bad packing, and if cooked a little longer at a higher temperature than other fruit.

The secret of success seems to be (if patent stoppered bottles are used) in screwing down the stoppers directly the bottles are filled to the brim with the "preserve," immediately after it has been steadily boiled for a few minutes.

If there is no preserving-pan available, the fruit can be placed in rather shallow dishes in an oven, and gently baked for ten or twelve minutes. It must then be turned into the bottles quite hot, and screwed down at once. The fruit must, of course, be first carefully picked over, and should

be gathered dry, and in as perfect a condition as possible. In this condition, put away in a dry cupboard, it will keep well a year, and it will be found to be as near as possible to the natural uncloyed flavour of the ripe fruit. It can be used with porridge or plain cold cereal "moulds" made like blanc-mange, or either oatmeal, maize, pearl barley, or crushed wheat. Taken with a little plain whole-meal biscuit or bread, such wholesome fare would form enjoyable breakfast or tea meals the whole year round. Finger-rolls, or any form of unfermented bread, with these "preserves," are perhaps the best approach to the ideal diet that can be aimed at for family practice during winter. Occasionally well-boiled plain rice or macaroni will be found to go admirably with such fruit.

Two ladies have forwarded the following recipes :—

"To 'can' fruit without sugar, put it in a stew-pan with sufficient water to keep it from burning, and bring it to a boil; have ready screw-topped bottles, which have been put into and filled with warm water which has been brought to the boil in a boiler; empty out the water, and *immediately* pour in the boiling fruit, fill to the brim, and screw down. The bottles must be looked at the next day, and if a bubble is seen that bottle must be done over again, as of course the object is to exclude the air. The boiler in which the bottles are heated must be lined with flannel, or something to prevent them from breaking."

These screw-topped bottles can be obtained through any glass shop. They are not needed in the following methods :—

Another plan: "(1) Get some good earthenware or glass jars, perfectly sweet, and free from cracks. (2) Fill the jars with sound, ripe fruit. Place them in a gentle oven, tops covered with plates or paper, to keep in steam and prevent burning. *No sugar to be added until needed for use.* (3) Have ready a supply of boiling water. When the fruit is heated through, *but not burst*, it will have sunk from two

to three inches, according to the kind. Take out of the oven, and fill the jars with the *boiling* water, to within an inch of the top; then cover *at once* with paper, *well pasted all over*. Over this, again, paste a second layer of paper, in a similar manner, to ensure the perfect exclusion of cold air. (4) Store the jars or bottles in a *cool, dry* room. Afterwards they should not be disturbed. (5) When required for use, open the bottles and pour off the juice into a preserving pan, and sweeten it with raw sugar according to taste. Boil the syrup about ten minutes, and pour back on to the fruit. At the time of boiling up the syrup and adding sugar, there is always a large quantity more than is required for covering the fruit; this I bottle separately, and use for making delicious fruit jellies, of which sago is the foundation."

A small kettle of boiling water should be at hand, as each bottle should be filled to the brim, especially with the screw-topped bottles, just before it is finally closed down. The fruit must be carefully watched for the first week, so that if not air-tight, or if any fermentation begins, it may be used at once.

In preparing the fruit for table, one pound of sugar to six pounds of raspberries, wild blackberries, whortleberries, etc., is sufficient; while for strawberries and the more acid fruits, one pound to four is requisite. Add a small quantity of water and cook the fruit less than if it were to be used immediately upon the table.

The method explained of baking the fruit in the bottles is not so well adapted for stone fruit, which requires the more intense heat of the stew-pan; but it is a far pleasanter mode to manipulate than Dr. Trall's air-tight flannel. The same lady (whose system has been strongly commended by others) also observes: "This plan, successfully carried out, cannot fail to give satisfaction. I have found it best to use large jars (six or eight quarts) when first preserving the

fruit ; and, at the time of opening them, for adding sugar, instead of putting them again into the large jars, pour the fruit out into smaller jars or bottles ; put them into the oven long enough to warm the bottles and fruit all through ; then pour the boiling syrup to cover the fruit, and paste tightly down to exclude the air."

The air can be effectually excluded by simply adding enough boiling oil on the top of the fruit, to cover it a quarter of an inch. When it is made for home use this is far the simplest plan, as it can be put away till wanted on a dry shelf.



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